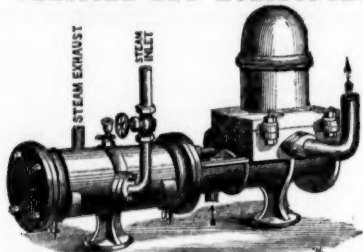


BICKFORD'S PATENT SAFETY FUSE

Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862, in London; at the "IMPERIAL EXPOSITION" held in Paris, in 1865; at the "INTERNATIONAL EXHIBITION," in Dublin, 1866; and at the "UNIVERSAL EXPOSITION," in Paris, 1867.



BICKFORD, SMITH, AND CO., of TUCKINGMILL, CORNWALL, MANUFACTURERS OF PATENT SAFETY-FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—
EVERY COIL OF FUSE MANUFACTURED by them has TWO SEPARATE THREADS PASSING THROUGH the COLUMN of GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as THEIR TRADE MARK.

PATENT UNIVERSAL STEAM PUMPS, VERTICAL AND HORIZONTAL.

POWERFUL—SIMPLE—DURABLE—RELIABLE—CHEAP.
SUPERIOR TO ALL OTHER INVENTIONS.

SOLE MAKERS—

HAYWARD TYLER AND CO.,
84 AND 85, UPPER WHITECROSS STREET, LONDON, E.C.
* * * WHERE IT CAN BE SEEN AT WORK.

GAMBLE'S PATENT STEAM LUBRICATOR.

FOR STATIONARY, LOCOMOTIVE, AND STEAM ENGINES.

SELF-ACTING

Lubricates all the valves and internal parts of the cylinder continuously. Effects a most important saving in the oil or tallow. Increases the regularity of working. Prevents frequent repairs.

SOLE MAKERS—

HAYWARD TYLER AND CO.,
84 AND 85, UPPER WHITECROSS STREET,
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**THOMAS TURTON AND SONS,**

MANUFACTURERS OF

CAST STEEL FOR PUNCHES, TAPS, and DIES,
TURNING TOOLS, CHISELS, &c.

CAST STEEL PISTON RODS, CRANK PINS, CONNECTING RODS, STRAIGHT and CRANK AXLES, SHAFTS and FORGINGS of EVERY DESCRIPTION.

DOUBLE SHEAR STEEL, FILES MARKED T. TURTON, BLISTER STEEL, SPRING STEEL, EDMOND TOOLS MARKED WM. GREAVES & SON, GERMAN STEEL.

Locomotive Engine, Railway Carriage and Wagon Springs and Buffers.

SHEAF WORKS AND SPRING WORKS, SHEFFIELD.
LONDON WAREHOUSE, 35, QUEEN STREET, CANNON STREET, CITY, E.C.
Where the largest stock of steel, files, tools, &c., may be selected from.

JOHN AND EDWIN WRIGHT

PATENTERS.

(ESTABLISHED 1770.)

MANUFACTURERS OF EVERY DESCRIPTION OF IMPROVED

PATENT FLAT AND ROUND WIRE ROPES
From the very best quality of charcoal iron and steel wire.

PATENT FLAT AND ROUND HEMP ROPES.

SHIPS' RIGGING, SIGNAL AND FENCING STRAND, LIGHTNING CONDUCTORS, STEAM PLOUGH ROPES (made from Webster and Horsfall's patent steel wire), HEMP, FLAX, ENGINE YARN, COTTON WASTE, TARPULING, OIL SHEETS, BRATICE CLOTHS, &c.

UNIVERSE WORKS, MILLWALL, POPLAR, LONDON.
UNIVERSE WORKS, GARRISON STREET, BIRMINGHAM.
CITY OFFICE No. 5, LEADENHALL STREET, LONDON, E.C.

GARNOCK, BIBBY, AND CO.,

MANUFACTURERS OF

IMPROVED PATENT CORDAGE,
MANILLA, COIR, AND WIRE ROPE,
LIVERPOOL.

MARTYN DENNIS AND CO., THE ALBANY, LIVERPOOL,
SOLE AGENTS FOR CORNWALL AND DEVON.



PRIZE MEDAL
AWARDED
AT THE
HAVRE
EXHIBITION
OF 1868
TO

**PEACOCK AND BUCHAN'S No. 3 COMPOSITION PAINT.**

Is superior to all other paints, and, being mixed ready for use, is cheaper. It also lasts longer, will wash without rubbing off, and can be applied by gardeners or labourers, requiring no oil, turpentine, or varnish. It is applicable for all kinds of house painting, greenhouses, rivetries, pit frames, &c.; also for carts, wagons, railway plant, agricultural implements, and MINING purposes, &c., after a successful trial of nearly TWENTY YEARS.

It dries in a few hours with a beautiful brilliant surface, without stickiness or unpleasant smell; and is more economical, and stands longer than unground ordinary paint, mixed by hand. It has been opened after ten years, and found to be quite good and ready for use.

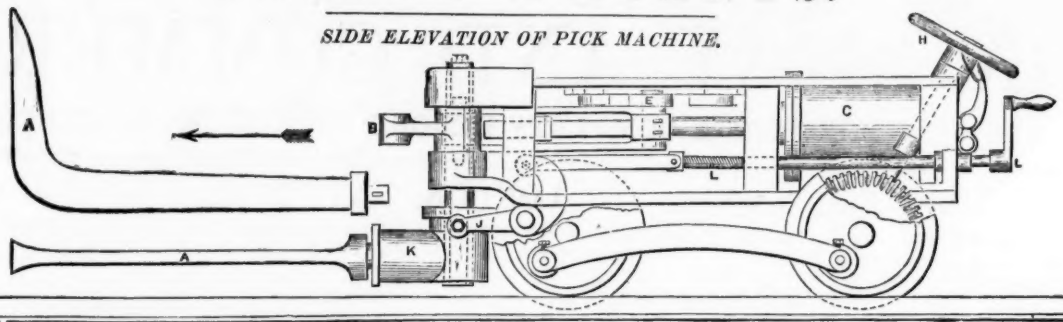
As any person can lay it on, it is found to be most economical and useful to country gentlemen, and to the settler in India, Canada, Australia, New Zealand, &c., when living at a distance from a town—enabling every man to be his own painter. Danger from fire on board ship is also prevented. (See pamphlet, with testimonials, sent free on application.)

PEACOCK AND BUCHAN'S ANTI-CORROSION METALLIC PAINT for MINING PLANT, at 30s. per cwt., is extensively used by the great mining companies, being cheap and durable.

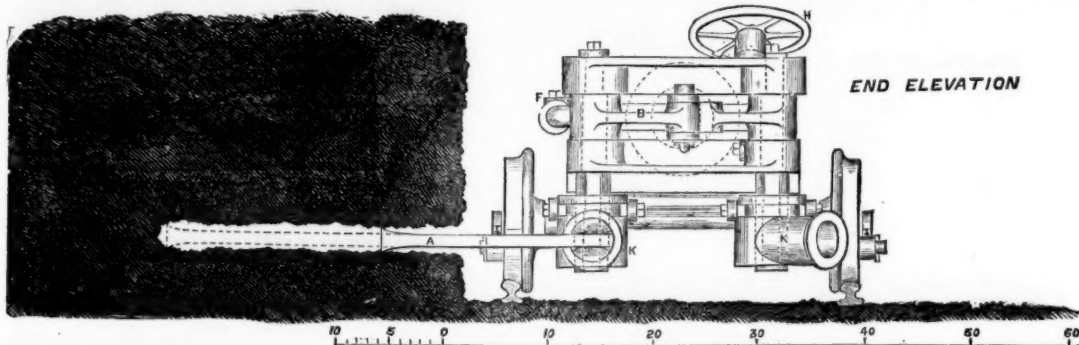
For prices, &c., apply to

Messrs. PEACOCK AND BUCHAN, SOUTHAMPTON;
MR. ROBERT ORD, JUN., MANAGER, 39, UPPER EAST SMITHFIELD, LONDON;
Or their accredited agents in all parts of the world.
AGENTS WANTED FOR INLAND TOWNS.

COMPRESSED AIR COAL-CUTTING MACHINERY. FIRTH'S PATENTS.



SIDE ELEVATION OF PICK MACHINE.



END ELEVATION

These Machines are now working with the most perfect success,
Both practically and commercially.

They are portable, easily managed, and not more liable to get out of order than other ordinary machinery. They EXPEDITE the OPENING of NEW PITS. There is LESS BREAKAGE of COAL, and a consequent INCREASE in its VALUE, with a DECREASE in its COST of PRODUCTION.

The VENTILATION OF THE MINE IS IMPROVED, the RISK OF ACCIDENTS DIMINISHED, and the SEVERE PHYSICAL CONDITIONS of COAL-PIT LABOUR are, by the USE of these MACHINES, MODIFIED and MUCH RELIEVED.

For terms of use, and for admission to see the machines at work, apply to—

MR. FIRTH 15, YORK PLACE, LEEDS.

* * * One of these Machines has "holed" during the last Twelve Months upwards of 30,000 yards to an average depth of 3 feet 6 inches.

FOR LATHE AND PLANING TOOLS.**"R. MUSHET'S SPECIAL STEEL."**

SPEED of LATHES may be advantageously INCREASED FIFTY PER CENT., and upwards; it is the most DURABLE STEEL in the Market, and, unlike all other steel, when forged into the desired shape, it REQUIRES NO HARDENING.

Mushet's Titanic Cast Steel for Lathe Tools, Chisels, Hammers, &c.

MUSHET'S TITANIC BORER STEEL.

Double Shear Steel; Spring Steel; Blister Steel.

TITANIC STEEL AND IRON COMPANY, LIMITED,

STEEL MANUFACTURERS,

FOREST STEEL WORKS, COLEFORD, GLOUCESTERSHIRE.

LONDON: Mr. HENRY MUSHET, LOMBARD EXCHANGE, E.C. GLASGOW: Messrs. JOHN DOWNIE and CO., 1, ROYAL BANK PLACE. NEW YORK: Messrs. CHARLES CONGREVE AND SON, 104 and 106, JOHN STREET.

WEIGHING PLANT,

To the standard of any nation,
Suitable for every purpose, of any power and dimensions.

Hodgson & Stead, Makers,

Contractors to Railways, Carriers, and others, for Maintaining Weighing Machinery.

Works: IRWELL STREET.

Show Rooms: New Bailey-street, Salford, Manchester.

**PATENT SELF-INDICATING WEIGHING MACHINE,**

Capable of WEIGHING TWELVE TUBS A MINUTE.

The Exchequer Gold and Silver Mining COMPANY (LIMITED).

Incorporated under the Joint-Stock Companies Acts, 1862 and 1867, by which the liability of each shareholder is limited to the amount of his shares.

CAPITAL £60,000 STERLING, IN 60,000 SHARES OF £1 EACH.

Deposit 2s. 6d. per share on application, 2s. 6d. on allotment, and the balance by instalments of 2s. 6d. per share, at intervals of not less than two months thereafter, until paid up in full.

DIRECTORS.

The Right Honourable the EARL POULETT—CHAIRMAN.
The Right Honourable the EARL OF BUCHAN.
The Right Honourable the LORD LOUTH.
S. KING CHURCH, Esq.
HENRY SYME, Esq.

(With power to add to their number).

SOLICITOR—GEORGE ANNESLEY, Esq., 64, Lincoln's Inn-fields, W.C.
BANKERS—THE METROPOLITAN BANK (LIMITED), 75, Cornhill, London, E.C.
BROKERS—Messrs. BENTLEY and HALL, Angel-court, Throgmorton-street, London, E.C.
MANAGER AT THE MINES—Captain JOHN CHALMERS.
SECRETARY—HENRY MURRAY SCOTT, Esq.

The mines of this company consist of two gold and silver lodes, extending 4500 ft. upon the same lodes as the celebrated bullion-producing I. X. L. Mine, situate at Silver Mountain, Alpine County, California.

Attention is directed to the small denominational value of the share, £1, when fully paid-up, beyond which there is no possible liability.

The easy terms of payment—viz., by instalments of 2s. 6d., extending over a year.

The directors receive no fees, and only a small commission upon profits.

The mine has been already proved by a tunnel; therefore there is no speculation about the investment.

Pay ore can be taken out at once, so that a dividend may be obtained within a very short time after commencing work.

Messrs. Johnson and Matthey's assay gives in gold 3'250 ozs., value £13; and in silver 249 ozs., value £65—showing a total value of £78 sterling per ton of ore.

The reports upon the property come from the most reliable and undoubted sources, in which the fullest confidence may be placed.

The purchase-money is to be paid in shares, with the exception of a small amount to come out of the first profits.

If no allotment be made the deposit will be returned without any deduction.

Applicants desirous of paying up their shares in full can do so, and will be allowed discount at the rate of 5 per cent. per annum upon the amount so paid in advance of calls.

Prospectuses and forms of application for shares can be obtained on written application only to the Secretary, at the offices of the company, 112, Palmerston-buildings, Old Broad-street, London, E.C.

A considerable number of shares having been already applied for privately, the allotment will be made at an early date and in the order of application.

The Virtuous Lady Mining Company (LIMITED).

INCORPORATED UNDER THE COMPANIES ACTS, 1862 AND 1867.

CAPITAL £15,000, IN 15,000 £1 FULLY PAID-UP SHARES.

N.B.—The whole of the shares are taken up. The present quotation is £3 per share, and a limited number only will be disposed of at that price, as they are rapidly advancing in value.

The directors were chosen at the First General Meeting of Shareholders, which took place on Wednesday, September 1, 1869, at the Bedford Hotel, Tavistock.

BANKERS—THE WEST OF ENGLAND AND SOUTH WALES DISTRICT BANK.

SOLICITOR—MR. EDWARD CHILCOTT, Tavistock.

SECRETARY—MR. THOS. J. BARNARD, 5, Abbey Mead, Tavistock.

The Virtuous Lady Mine is situated about 3 miles south-west of the town of Tavistock.

The sett, which is very extensive, and comprises the most highly mineralised ground in the two counties of Devon and Cornwall, is held upon lease for 21 years, from Sir Massey Lopes, Baronet, dated July, 1869, upon a royalty or dues of 1-18th.

Almost unlimited water-power is available, as the rivers Walkham and Tavy pass through the sett.

Historical records set forth that this mine was worked by the ancients for silver, and that the caverns which were formed by mining industry were in later years inhabited by banditti. It is generally known that well advanced in the present century the mine has returned tens of thousands of tons of rich copper ore. It is, however, quite apparent that in the past the intrinsic value of the property was unknown, and, therefore, never duly appreciated, or it would have been more developed, and the treasures already discovered not left for the present proprietors. It was for years recognised as the mine of mines from its immense returns of rich copper ore, nevertheless the deepest workings are only about 17 fathoms from surface, which will readily show that really practically the mine has hardly been explored at all. The courses of ore so far worked upon are not what are called regularly defined; they are what are termed "flats"; they have, however, perfect walls, and when descending into the earth have a beautiful underlie; but suddenly the descent ceases, and the courses of ore run away in a "flat" direction for some considerable distance, when they again take a descent, with a fair underlie. It is from these "flats" that tens of thousands of tons of copper have been extracted, and the horizontal courses alone will unquestionably yield great quantities of ore, as they, comparatively speaking, have thus far been but slightly worked; the "flats" are, however, merely out-throws, yea, threads only of and from the gigantic quartz lodes which are 100 to 200 feet wide. By a winze or sink that has been put down some 8 fms. in one of the levels the ground below is found producing good and large stones of rich ore, and the evidence appears clear that these immense quartz lodes will when followed to the deep make most extensive lasting deposits of copper ore.

The extensive and remarkable crystallisation and decomposition throughout these great quartz lodes is a further striking evidence of the chemical action caused by affinity, change, or formation of existing very large metallic mineral bodies below, and further, the great cauter lode to the south (upon which operations as shadings only have been done as yet), and dipping to the north, will be about 40 fathoms from surface form a junction with the great north lode, when almost unheard of masses of copper may be expected to be discovered.

The mine is in full operation, a water wheel and crushing machine and all the necessary machinery being in the active course of erection, and temporary dressing floors are laid out in order to dress the ore upon a small scale, until the machinery is put in motion, when more extensive workings generally can be carried on. The machinery will be started by the end of September, when the old work-

ings will be drained, and the shaft commenced to be sunk 15 fathoms deeper and cross-cuts driven to intersect and cut the lodes at that depth, which can hardly fail to yield immense deposits of copper ore; but apart from any new explorations and anticipated great discoveries in entirely new ground, constant enquiries are being made by "tributers" for "pitches" in the old workings as soon as the mine is drained. To the uninitiated in practical mining it may be observed that "tributers" will take the only little bit of speculation there may be in the mine, as they receive nothing save a certain share (and this for a limited time only), of the sale of the ores they search for and discover.

We will now draw attention to the assays made by Dr. Philpott:—No. 1 sample, yellow and black ore, clean in hard substance, 20 per cent. copper, 19½ ozs. of silver to the ton; No. 2, peach, pryan, yellow and black ore intermixed, 14½ per cent. copper, 16 ozs. of silver to the ton; No. 3, pryan, with a little black ore, 6½ per cent. copper, and 10 ozs. of silver to the ton.

An elaborate and most careful general mineral analysis by Dr. Philpott, of the mineralised pryan and other matters of the lode now being worked upon, gives a result of the existence of copper, silver, lead, tin, antimony, cobalt, nickel, iron, zinc, and sulphur—strong traces of the whole—but the chief and only paying quantity being copper, the silver contained in it enhancing its value. Mr. J. Harvey, Assayer, of Tavistock, has made several copper assays, the products of different specimens ranging from 6 to 25 per cent. A killas and peach have also been submitted to Dr. Philpott, and Mr. W. Richards, gold and silver assayer, of London, to be tested for gold, by analysis and assay, and out of very small samples, both gentlemen found strong traces of gold. It is not at all unlikely the rich deposits of quartz in the old workings may contain both gold and silver, not visible to the eye, but rich enough to yield a profit upon pulverisation and proper treatment. Reference may be drawn to the fact that this mine has received large sums of money for its quartz specimens, as simply ornamental works of nature, it having been the rule to search every man coming from underground.

Ample capital is provided to put up most extensive and all necessary machinery, and thoroughly explore the mine, and at the same time the parts of the lodes above water level now being worked upon, which are productive in rich ore, and daily growing more valuable, will at once, and more especially when the machinery is in motion, so that the crusher can be used, furnish profits which can only result in handsome dividends at an early date.

Knowing that reports by mining agents embodied in a prospectus are more or less ignored, none accompany this circular. The mine is in full operation, and can be visited and inspected by any intending investor, mining inspector, or visitor upon their own account, upon application to the secretary for a visiting card.

The company is formed, the shares are all taken up, and the mine stands upon its own merits, open for the world to criticise.

Shares can be purchased of the Secretary, Mr. THOS. J. BARNARD, 5, Abbey Mead, Tavistock, who is prepared to transfer a limited number at £3 per share.

N.B.—The machinery was started on Saturday, October 16th, with the greatest success.

DERING'S PATENT ROCK-BORING MACHINERY, DRIVING LEVELS AND SINKING SHAFTS IN MINES, QUARRYING, RAILWAY TUNNELLING, AND OPEN CUTTING.



ARRANGEMENT FOR SHAFT SINKING AND QUARRYING.

In STONE of ORDINARY HARDNESS the MACHINE will BORE HOLES at the rate of about SIX INCHES in depth PER MINUTE, and in the HARDEST GRANITE at from TWO to THREE INCHES PER MINUTE. For this a working pressure of 30 lbs. only per square inch is required. In Quarrying and Shaft-sinking the stand is not required, consequently NO TIME IS LOST IN FIXING THE MACHINE.

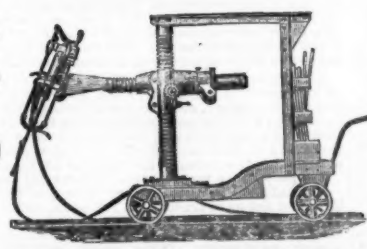
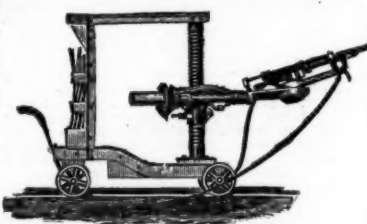
This engine has been used with advantage in the mines of the Vieille Montagne Company in Germany, as well as in Belgium, and at Tincroft Mine, in Cornwall.

Twelve engines are now in course of construction for use in the Dolcoath Mine, in Cornwall.

For further particulars, apply to the sole makers—

SIMPSON & CO.,
Engineers,
GROSVENOR ROAD,
PIMLICO, LONDON, S.W.,

On whose premises a Machine can be seen in action.



ARRANGEMENT FOR LEVEL DRIVING AND TUNNELLING.

FOREIGN MINING AND METALLURGY.

The year closing June 30, 1869, produced the Franche-Comté Forges Company a profit of 23,886l., admitting of a dividend of 10s. per share. The administration of the company has been authorised to expend 8000l. in the execution of various new works. The Epinao Collieries and Railway Company has been paying this month a dividend at the rate of 4l. per share. The Graissessac Mines Company commenced the payment on Wednesday of a dividend of 9s. per share. The Pontgibaud Mines Company has been paying this month the balance of the dividend for 1868-69, or 17. 4s. per share. The Creusot Works Company commenced the payment on Wednesday of a dividend of 1l. per share in respect to the exercise 1868-69. The iron trade of the Haute-Marne has been pretty well maintained at 9l. to 9l. 4s. per ton for rolled iron from charcoal-made pig, and 8l. 12s. to 8l. 16s. per ton for rolled iron from mixed pig. Machine iron is a good deal sought after at present, and some important transactions have been proposed,—deliveries to be made during the first half of 1870. The foundries of the Haute-Marne have still a tolerable amount of work on hand. Some of the works having hydraulic motors have been stopped by an overflow of water; and this check to their operations has caused them to be somewhat in arrears with their deliveries. The seventeenth meeting of the Champagne Committee of Forgemasters has been held at St. Dizier; the meeting was a more numerous one than usual, all the industrialists of the district appearing disposed to testify their sense of the importance of the occasion, and the desirability of expressing their views on pending affairs. A circular was read from the Minister of Commerce, in which he invited the meeting to nominate delegates to give evidence before the Superior Council of Commerce on the occasion of an official *enquete* into the commercial system of France. After reading the circular, the President of the meeting enquired if any members of the committee desired to be appointed delegates. The meeting unanimously protested against the nomination of a Superior Council of Commerce under the presidency of M. Rouher. The committee energetically called for a parliamentary enquiry, as the only means of affording a serious remedy for pending difficulties, since the right of discussing and establishing Customs duties is confided to the Chambers. The meeting contended that it was highly desirable that the Chambers should be well informed as to the consequences of the present treaties, and the suitability of the tariffs applied. In response to an invitation from M. Pouyer-Quertier, the committee nominated two of its members, MM. Lasso and P. Jamin as its representatives at a great conference held at the Hotel du Louvre. The committee observed that while denouncing the treaties of commerce concluded by France of late years, it did not wish to declare itself opposed to all such treaties, or to proclaim itself as protectionist, or, still less, as prohibitionist. What the committee wished to do is to protest against the principle of treaties concluded without discussion, without warning, without previous enquiry, and without compensation. M. André was re-elected a member of the committee, and M. Jacquot was appointed Vice-President. The advice which come to hand from the North and East of France continue very favourable. Tenders were recently invited for the supply of 100 tons of wire for submarine telegraph cable; the tenders submitted were based, however, on terms which were considered too high, and no contract was consequently let. A fresh adjudication has taken place this month, and a contract has now been let for the supply of the 100 tons of wire (non-galvanised) at 1758l., that being the offer of MM. Jamin, Bailly, and Co.

There is not much change to note in connection with the Belgian iron trade; if anything, however, business appears to be scarcely so brisk. There had been some expectation of an advance in prices, but not only has this not taken place, but it appears that the current tariff of 6l. 16s. per ton for rolled iron has been maintained with some difficulty, and that in some cases concessions—that is, reductions—have been made of late. Refining pig has remained without change on the principal Belgian markets; good qualities of casting pig have displayed a certain upward tendency. The Ougrée Collieries and Blast-Furnaces Company will pay, Jan. 2, a dividend of 16s. per share in respect to the exercise 1868-9. The Prague Sidurgical Company will distribute for the last financial year 5 per cent. in the shape of interest, and 8l. per cent. in the shape of an extra dividend, or altogether 2l. 14s. per share.

The French copper market has been stationary, and has even displayed a slightly downward tendency. About 10 tons have changed hands at Havre at 68l. 8s. per ton, Paris conditions; a transaction has also been recorded in Corocoro mineral at 71l. per ton, Paris conditions. At Paris, Chilean iron bars has been dealt in at 68l. 4s. per ton; ditto in ingots, at 72l. 8s. per ton; Corocoro mineral (pure copper) making 70l. 16s. per ton. The general condition of the German copper markets is satisfactory; prices have been sustained tolerably well, although business has not displayed any particular animation. At Hamburg, as well as at several other points, purchases have only been made to meet the current requirements of consumption. The Paris tin market has been feeble, and prices have been very irregular. There is little to report as to the German tin markets. The state of the Dutch tin markets appears to be far from brilliant. At Rotterdam quotations at the last dates were again weak. Banca has been dealt in at 67 fls.; Billiton remains very scarce. At Paris, French lead has been quoted at 19l. per ton; Spanish, at 18l. 16s.; English, at 18l. 16s.; and Belgian or German, at 19l. per ton. At Hamburg there has been comparatively little business in lead, but prices have been well sustained; the other German markets have presented no important change. Rough Silesian zinc, delivered at Havre, has been quoted at Paris at 20l. 8s. per ton; other good marks have made 19l. 16s. per ton, or with delivery at Paris at 20l. per ton. Breslau, which may be regarded as the regulating German zinc market, has shown a little more firmness, but no important transaction has been recorded.

GOLD MINING AND MILLING IN NEVADA.

A lively interest is being manifested by mine holders and millmen in Nevada in the working of the Stetefeldt Furnace, a large number having visited the Nevada Land and Mining Company's mill, for the sole purpose of observing the process in operation. The opinions entertained are highly favourable, and the process is considered to be perfect, and destined to cause a complete revolution in the system of milling ores. The company have secured the exclusive right of working Humboldt ores, and it is much cheaper freighting ores in than wood out. A competent authority on the subject observes, that when we contrast the old, awkward, clumsy, and expensive method of roasting with this simple, ingenious, and economical contrivance, it is amazing that it was not discovered and introduced before. Formerly, one man working hard, and using half a cord of wood and 10 per cent. of salt, could roast ¼ ton in eight hours; in other words, the same amount of labour in the Stetefeldt Furnace will do from 10 to 14 times as much work as in the reverberatory, using only one-fifth of the fuel and six-tenths of the salt formerly necessary.

In addition to these advantages, the Stetefeldt Furnace chloridises from 4 to 8 per cent. higher than the old method, and does its work much more uniformly. The chloridising is done in two seconds instead of eight hours, and the space required is very much less, one Stetefeldt Furnace taking the place of ten reverberatories. The ore and salt go together into the batteries, and are not handled further until it comes out at the bottom of the furnace, roasted and ready for the pans. The success of the Stetefeldt Furnace has enabled the English company to reduce the rate of milling to 350 per ton, and guarantee as high as 85 per cent. They own the patent right for their mill, and can defy competition in the reduction of all ores which require roasting. The manager of the company, Mr. J. J. Dunne, is determined to accommodate all who come, and proposes to increase his milling capacity, so that Nevada ores need not go out of Nevada.

The first practical results were obtained with some ores from Bull's Run district, via Elko (most of the rich ore along the line of the railroad has been hitherto sold at San Francisco at prices satisfactory to mine owners). This lot was sent to the Auburn Mill to be worked by the Stetefeldt Chloridising Furnace. Yesterday the owners received 84l. per ton for their ore net, after paying all charges of transportation, milling, &c. The same lot would have yielded in San Francisco only 69 net per ton. In another case, some ore from Humboldt county, worked at the Auburn Mill, netted the owners 830 per ton, whilst if shipped to San Francisco it would not have paid expenses.

CAPE OF GOOD HOPE.—Numerous further discoveries of diamonds had occurred on the frontier, and at Springbok and Hondekilip, a large number were in the possession of purchasers. Some stir had been caused in Cape Town by Mr. H. Labrey, a geologist and practical miner, having announced the discovery of large quantities of coal, lead, and copper between Tulbagh and Ceres. Government was taking measures to test the value of the discovery.

LONDON GENERAL OMNIBUS COMPANY.—The traffic receipts for the week ending Dec. 12 was 969l. 12s. 11d.

The Pacific Mining Company.

Mr. EDWARD COOKE, 76, OLD BROAD STREET, LONDON, E.C., begs to draw the attention of the public to this company, which has been formed, with a capital of £150,000, divided in 15,000 shares of £10 each, for the purpose of purchasing and working three rich and profitable mines—two gold mines, situated in the State of California, and one silver mine, situated in the State of Nevada, United States. These mines, which have been selected for purchase during the last autumn by Mr. GEORGE BATTERS, of the London Stock Exchange, so well known for his great mining successes in the West Chiverton and Van Mines, are already paying profits amounting to £30,000 a-year, sufficient to afford a dividend of 20 per cent. on the par value of the shares, with the prospect of an early and large increase of these profits. With the profits already paying, and the prospects of greatly increased profits, there is little doubt that the shares in the Pacific Mining Company will go within a few months to a great premium. Mr. EDWARD COOKE, therefore, recommends immediate purchases at present prices—1 to 1½ premium. The board of direction is composed of gentlemen of the highest position in the City of London.

The following interesting statements respecting mining in California and Nevada, and particularly respecting the present position and future prospects of the mines of the Pacific Mining Company, given by Mr. BATTERS, and his mining agent, Captain BARRATT, at a meeting held at the London Tavern, on Nov. 25 last, will afford the best evidence of the value of the properties of this company. It is taken from the report of the meeting given in the *Mining Journal* of Nov. 27:—

PACIFIC MINING COMPANY (LIMITED).

One of the most important and influential meetings that has ever been held in connection with the inauguration of a mining enterprise took place at the London Tavern, on Thursday, to hear from Mr. George Batters the results of his recent personal inspection of mineral properties in California and Nevada, more particularly those which the above-named company have acquired. Upwards of 100 of the leading members of the Stock Exchange were present, and many others interested in mining.

Mr. GEORGE BATTERS (who was very warmly received) prefaced his observations by stating that he proceeded by way of the Union Pacific Railway to the great centre of the mining operations, which was the immediate object he had in view in undertaking the journey. There was no parallel of late years in ancient or modern times to the influence which the pursuit of gold had had in directing the stream of population to California. In 1848 gold was first found, and like all great discoveries of precious metals, it was to be ascribed to chance rather than to scientific investigation and research. The yield of the precious metals during 1855 amounted in value to \$25,000,000, or £13,000,000 sterling; and since that period upwards of £200,000,000 sterling had been returned, and was now in circulation in the commercial world. The gold-producing area appears to be limited, being, doubtless, confined between Sierra Nevada and the great rivers. In 1852 London was flooded with companies formed for working the gold mines of California, but from ignorance of management, cupidity, and injudicious expenditure, the whole of them, without a single exception, failed to return a single shilling. Subsequently discoveries of silver of enormous value were made in Nevada, and from the Comstock lode alone some £10,000,000 worth of silver has been returned, and from the appearance of the mines when he inspected them, about two months since, there seemed every prospect of silver being returned to the value of another £20,000,000. In one mine which he inspected—the Yellow Jacket—profits were being made at the rate of about £100,000 per annum, and the mine was not more than 900 feet in depth. He saw in this mine one shaft that was being worked 24 feet wide, producing stuff worth from £150 to \$500, or £30 to £100, per ton as broken. Undoubtedly these were the richest silver mines in the world, and the lodes were being worked with great care, and without regard to cost. In some mines the timbering work was more like cabinet-work than ordinary mine timbering. The shafts were perpendicular, and the ordinary mode of hauling was by means of horizontal engines and wire-ropes, not much unlike ordinary colliery drawing in different parts of this country. The general working was the same as that in Cornwall, but crushing and amalgamating were now being reduced to a more perfect system. In Austin City and Belmont, where there were some splendid mines, he found that mines were being worked in the same way as those in Virginia City, but in White Pine the system was much more regular, the lodes being chiefly limestone, and the results less uniform in character. The durability of the productive character of these silver mines might be judged from the fact that some time since, after the Comstock lode had yielded enormous returns, a hard bar of ground was entered, and it was feared the lode would cease to return ore, but subsequent explorations in depth had given a new life to the mines, the Yellow Jacket being the most remarkable instance. For some years the operations in the gold mines were confined to washing or "placer" mining; then attention was directed to working the lodes of rivers, which, strange to say, were found on the tops of mountains, exhibiting the effects of enormous upheavals. As these works were prosecuted co-operation was found to be necessary, and the individual system of working gave place to the more effective and comprehensive system of hydraulic washing and ordinary quartz mining. The hydraulic works were now being carried out upon a very large scale, as from this description of mining about two thirds of the returns of gold were now being made. Aqueducts were constructed round the mountains for a considerable distance as much as 40 or 50 miles. A fall was obtained, and the water was conveyed in pipes to the "facings" on the mountain, gravel, and sand to be operated on. Such was the power thus obtained that the very mountains were worked away. At one place he visited the "facings" must have been 1000 ft. wide, and boulders, gravel, and sand were made to roll through an ex-aqueduct, or stoneduct, to the valleys, a depth of 1000 or 1500 ft. In a distance not exceeding one mile, the gold being collected by means of quicksilver and blankets. Quartz mining also was being carried out systematically, and upon a very extensive scale, one third of the gold found in California being thus obtained. The Arguer Mines had been worked to a depth of 1200 feet, and large returns and profits were still being realised, the general prospects being in every respect as promising as during any period of the working, although it had returned many hundred thousand pounds. In Grass Valley, the Allison Rancho Mines had been very successful, and Eureka, Idaho, and Union Hill were also being successfully explored in this small valley, and there would appear to be a great, permanent, and prosperous future for quartz mining in Grass Valley. In Eureka, where he went underground, he found a lode of 500 ft., certainly the best lode in the mine—this mine had given for the last four years a profit of about £70,000 per annum; this was not a solitary instance of successful quartz mining in this district, for when the American found that any particular mine was unprofitable he soon abandoned it, for not being very "plucky" he did not like to ride a dead horse. He (Mr. Batters) went underground at Idaho and Union Hill, where considerable profits were being made, and he had no hesitation in saying that Union Hill presented every prospect of becoming equal to Eureka, for, apart from every consideration, the lode was actually richer than Eureka was at the same depth. He had just received a telegram informing him that the profit made last month was £600, or £300, and the prospects of a permanent and progressive increase were certainly all that could be desired. The extent of the "claim" was somewhat about 3000 ft., or 500 fathoms long. Union Hill was one of the mines he had purchased on behalf of this company; and the Buckeye property, which he carefully inspected, consisted of a hill of about 1000 ft. above the present level of the Yuba river. There a deposit had been discovered for about 1000 feet wide, its entire width being unknown, the whole body of which was being washed away by the hydraulic process; it was operated upon by first being disintegrated by the action of gunpowder upon the "facing"; small tunnels were driven in and T-pieces formed, the rock then fell in, and the water brought down in "flumes" until it reached the River Yuba, when the precious metal was collected. The whole process was exceedingly simple, and the present returns from this mine alone yielded a profit of £200 per month. This property he had also secured in purchasing upon exceptionally reasonable terms; he had no hesitation in saying that calculating the extended operations contemplated, this hill could not be removed in the manner described during the next 30 or 40 years. Their agent, Capt. Barratt, in his (Mr. Batters's) presence went to the "facing" in different places, removed the gravel, and merely washing it in a pan, as a miner would do in Cornwall, gold in appreciable quantities was produced. While upon this subject, he could not do better than to quote from an excellent work by Mr. T. F. Cronin, upon the "The Natural Wealth of California," where the writer states that "It is estimated that the gold washed from a group of hydraulic mines at Buckeye, Nevada county, reached a gross yield during the past few years of \$15,000,000; the Kennebec Company returning £250, and another \$500 per day. At French Corral, near by, Eddy and Company took out \$30,000 in a run of one month; while the Dookrum Company, operating at the same place, have cleared \$30,000 within the past two years. These are not cited as extreme cases, but as instances about what are the average results obtained from the better class of claims in that section when they are once opened, and which the lode is a large number in Nevada county." The result of his enquiries led to this conclusion—that, generally speaking, the Americans had the good sense to keep to themselves their wonderful mines in California and Nevada, so that those who came to this country with "bals" to sell, which were represented to be making wonderful profits, were the merest adventurers, and should be avoided, being known to the respectable Americans by the appropriate title of "loafers." At his time of life it would not suit him to bring out a speculation, and he would rather that none of those gentlemen whom he now had the pleasure of addressing should take an interest in this enterprise, if by so doing they should be induced to associate themselves with others. Besides these two mines—the Buckeye and the Union Hill—the company would acquire Lander Hill, near Austin City, Nevada. Mining there was at a low ebb, most of the miners having deserted their camp and gone over to another district, called White Pine, where gold had been discovered in the limestone. He discovered this mine by accident, and was much interested in it from seeing some beautiful rocks being brought to surface. He had no idea at the time that they would sell at any price, and he had no authority to go underground. He, however, managed to inspect it, and afterwards Capt. Barratt went underground, and so satisfied was he (Mr. Batters) with Capt. Barratt's report that he set to and succeeded in purchasing it, although not without considerable difficulty. Therefore, the company possessed Buckeye, which was making a profit of £1200 per month; Union Hill, which was making a profit of £500 per month; and Lander Hill, which was making a profit of £800 per month. Without taking into consideration the fact that the profits from each of these mines could be easily and rapidly increased, the present aggregate profits amounted to £2500 per month, or £750 per quarter, or 10s. per share per quarter, equal to 2s. per share per annum, the capital of the company being £150,000, in shares of £10 each. What induced him to purchase Lander Hill was this—that under the bottom level a "sump" had gone down, where there was a very fine lode, which Capt. Barratt fully described in his report. He (Mr. Batters) had no hesitation in

saying that if the lode should be intersected 50 fms. below the present working, which there was every reason to confidently believe would be the case, Lander Hill would at once become a property, *par se*, of treble the value of the entire issue price. He was not prepared to put that forward as a promise, nor did he wish what he was about to say to be construed into one, but he thought it probable that the shareholders in this company would have the pro-mission to the Eureka Company if he should succeed in purchasing the Eureka Mine. He carefully inspected that mine, and naturally enough they wanted a large sum of money for it. He found, also, they were paying a very considerable interest for money in California, as much as 2 and 3 per cent. per month being paid for advances upon bullion; therefore, he thought it was not a very great stretch of credence if he succeeded in purchasing the mine upon a basis of 20 or 30 per cent. upon the present profits, keeping in view the prospects as regards permanence. He did not perfectly succeed; first of all they did not want to sell any of it, and then, after a good deal of negotiation, they thought they might, perhaps, be induced to sell one-half. He went to San Francisco, and saw several of the shareholders, and also to New York, where he saw the banker, also a large shareholder. That gentleman said he did not desire to sell his shares, as the amount he (Mr. Batters) offered would be obtained in three years by the profit from the mine, and by that time it would in probability be twice as rich as it was at the present time. He (Mr. Batters) pointed out that as the Americans had enormous facilities for turning over their money at usurious rates of interest, a property which might be good enough for them to sell might be equally good for English capitalists to buy. After a good deal of trouble and difficulty he succeeded in getting a document signed by 3500 out of 4000 in favour of the sale of the mine, and he hoped to succeed in obtaining the remaining 500, in which case the selling price would be £250,000. That would look like 33 per cent. upon the capital. He then called upon Capt. Barratt to read his reports.

The reports were as follows:—

Grass Valley, California, Sept. 24.—In conformity with your instructions, I have carefully examined the Buckeye Gravel mining properties, and the following are my remarks thereon:—The Buckeye Gravel mining claims, or mining properties, are situated in Birchville mining district, Bridgeport township, about 16 miles north of Grass Valley, Nevada county, California. The Buckeye claims are 1400 ft. long, by 1600 ft. wide. The slope or face of the gravel bed on which they were working when I was there I calculate to be 160 feet high, divided as follows:—From the bed rock, up 50 ft., the bed is composed of pebbles, cemented with granite or grey sand; above that comes in a bed of pipe-clay 20 ft. high, and the remaining 90 ft., up to the surface, is composed of pebbles and sand; the whole is auriferous, but the bottom level (the blue bed) is the richest, and yields considerable gold. It is impossible to arrive at the yield per ton, as the lode is not evenly distributed; but from samples (pan of dirt) I washed from the bottom level I am quite satisfied the yield is enormous, and the quantity of gravel of bed matter is sufficient to last by the present rate of extraction (for 50 Chinamen) more than 70 years; but should this property come into English hands, with much greater force, there will be sufficient gravel for 40 years to come. At the present slow rate of extraction the present company paid in dividends during last year \$72,000, equal to £14,000. During that year they were at great expense bringing in the new tunnel, which on its arrival at the breast of the tunnel the gravel bed was about 40 feet below the bed of the gravel deposit, so as to put in a new run of flumes. This tunnel, ere this, has reached the face of the gravel bed, and hydraulic can be done with increased yield, and with less expense. I have no doubt the yield of gold will be double or treble that of the present. The yield of gold to the present, or to the end of last year, amounted to about \$600,000. The present yield per annum is about \$140,000, and if a new company take the property with the increased facilities now offered by the new tunnel, the yield can be trebled, and the profits increased to more than a third of the present amount. There is every facility for working this mining property. The company have the right of more than three miles of the Yuba river, and they have flumes laid all that distance. Water is an item that is rather expensive, but when we take into consideration the enormous yield of gold that can be obtained, that expense does not interfere with the working of such concerns. I am fully persuaded that this hydraulic mining property is exceedingly good, and can be very profitably worked. Looking at all the circumstances connected with it, I am confident it is worthy the investment of English capitalists, and I can conscientiously recommend it as a good investment.—JAMES BARRATT.

Grass Valley, California, Sept. 25.—In accordance with your request, I have carefully examined the Union Hill Gold Mine. The Union Hill Gold Mine is situated about two miles south-east from Grass Valley, Nevada county, California. The engine-shaft is sunk to the depth of 260 ft. on the dip of the lode, which bears about east and west, and dips south about 7 ft. in a fathom. The 160 ft. level has been driven west 360 ft., and east 450 ft. from the engine-shaft. Considerable stoping has been carried on in the back of this level; most all the lode is taken away to the surface. In the 260 ft. or bottom level the western end is driven 200 ft. from the engine-shaft, and 160 ft. east of it; very little stoping has been carried on in the back of this level; most all the lode is reserved. The yield of this gold mine, like most of the mines of the district, is low at shallow depth, but when greater depth is attained the yield of gold increases. The lode throughout the mine is generally large in the bottom level; the lode averages 5 ft. wide, with a ley or yield of from \$3 to \$12 to the ton. Although the yield is low, comparatively speaking, there is an abundance of auriferous quartz rock or ore for the mill or stamps. There are one or two indications like this. There is more water than in many of the neighbouring mines at the same depth, which is a considerable sign of a porous, large, and continuous lode. There is another indication a few fathoms west of the engine-shaft in the bottom of the level, which I think is favourable, that is, the lode is mixed with more oxide of iron than at any other part of the mine. There is not so much iron pyrites or sulphurets as I would like to see, but as the mine gets deeper there will be sufficient. The length of this mining grant is 3000 feet. There is a 20-horse stamp mill, with all the necessary appliances for the extraction of gold. There is considerable water in the upper level, which I think can be taken advantage of in a tunnel a sign from the valley below the mine, the course of the lode this would be a twofold object—prove the lode and drain the mine. The gold yield of the mine is about \$13,000, or £2600, per month. The profit is from £500 to £1000 per month. This property is in a granite rock, similarly situated as regards composition of lode and the country rock as the rich Eureka Mine, which is on the same run of lodes, and my opinion is that when another 100 ft. level is reached the lode (quartz) will be richer in quality, and that the mine will greatly improve. It is a mining property, from the indications in the present mine, that warrants and promises protection, and I do not hesitate to recommend it to English mining capitalists as a very good investment for capital.—JAMES BARRATT.

Austin, Nevada, Oct. 13.—Agreeably with your request, I have thoroughly examined the Eureka Silver Mine. The mine is 1000 ft. long, situated in Lander Hill, near the town of Austin, Nevada, and is sunk to the 400 ft. level; it has two shafts, one on the course or dip of the lode, and the other perpendicular; from the latter all the present mining operations are being carried on. At the 400 ft. level a cross-cut has been driven, and intersected a lode bearing west-north-west and east-south-east, and dipping northerly about 9 ft. in a fathom. This lode has been rich, and in the back of the 400 ft. level, in the stopes, it is at present about 2 ft. wide, of very rich ore, for 270 ft. long. There is yet considerable rich ore to be taken out of the 400 ft. level. The sump or engine-shaft is sunk 140 ft. below the 400 ft. level, and all the lode is standing whole from the bottom of the 400 to the bottom of the sump, or sink. If the lode, when intersected in the 550 ft. level, be found as rich as in the 400, the mine will be worth four times the money asked for it. In sinking the perpendicular engine-shaft it will intersect, within 1000 ft. deep, three other known productive lodes. Last year the mine gave, or produced, 1030 tons of ore, yielding \$224,000, equal to an average of about \$17 to the ton, or £45 8s. per ton of ore. The quantity of ore can be greatly increased. The mine has gully pumping-engine, drawing engine, two reduction-works, one 10-horse steam, driven by steam, six amalgamating barrels, five roasting or calcining furnaces, spare 10-hp. mill, seven fine horses, two mules, and everything required to carry on the mine and the amalgamation of its ore. The Metacom reduction mill, in operation at present, is situated about 3¼ miles from the mine. The New York or Lander Hill is situated in Austin, about ¾ mile from the mine; but it has nothing erected on it, although, when required, it can be put in operation. This mine put out yield of \$70,000, or £14,000 profit. I consider this to be a very good mine, and, if worked with a little activity, can be made to yield double the amount it does at present. Looking at all the different points, and the capabilities of this mine, I consider it one of the best mining properties offered to English mining capitalists; and when the mine is further developed it will be found a very lucrative and profitable concern; and I can recommend it, feeling assured it will become one of the best silver mines of Nevada.—J. BARRATT.

After some discussion, Mr. H. L. PHILLIPS proposed that the united thanks of all present be accorded to Mr. Batters, for the interesting information he had communicated, and also for affording them an opportunity of becoming interested in a mining enterprise yielding interest at the rate of 20 per cent. Few men were to be found who would complete a journey of 16,000 miles in less than three months, and then offer those with whom he was associated the privilege of becoming interested in the result of his labours upon such favourable terms. The proposition was seconded, and carried unanimously. Mr. BATTERS having thanked those present for the vote passed, stated that he would not have travelled 15,000 miles, risked his life, and employed his services in this direction for the small sum he would realise, were it not that he would rather receive a small sum with credit than a considerable sum with dishonour and discredit. (Hear, hear.) He had the fullest faith in the company, and believed it would prove handsomely remunerative to all who associated themselves with it. (Hear, hear.) Mr. Phillips had stated that the present rate

of profit was 20 per cent.; he should hesitate to speculate as to the rate at which those profits could be inexpensively increased. (Hear, hear.) The present results were good enough, but they could most certainly be materially improved. (Hear.)

Any further information required can be obtained at the offices of Mr. EDWARD COOKE, Stock and Share Dealer, No. 76, Old Broad Street, London, E.C.

Meetings of Mining Companies.

YUDANAMUTANA COPPER MINING COMPANY OF SOUTH AUSTRALIA.

The half-yearly meeting of shareholders was held at the City Terminus Hotel, on Tuesday, Mr. HENRY HILLS in the chair.

The report stated that a remittance was made from the colony by their superintendent of a draft for 4500l. in September, which has now matured. This sum was sent by Mr. Fivish without instructions, and under an impression that the profits of the mine in being rendered possible and proper for the directors to declare and pay a dividend; but the directors, on subsequently ascertaining that the amount was obtained by an increase of the company's debt to the bank in the colony, required an explanation from Mr. Fivish (not yet received), and in the meantime hold the present balance of this sum on deposit. The directors in their last report stated that they have been unsuccessful in tracing out the perpetrators of the fraudulent telegram. They have now, however, done this, and on account of the importance and peculiarity of the case communicate it herewith by a separate paper confidentially.

The CHAIRMAN stated that at the last meeting the accounts were not passed, owing to the disputed amounts relative to wood and charcoal, but these had since been found to be correct. Judging from present circumstances, he believed that the cost of producing copper during the year 1869 would be found equal to that of 1868—that is, 54s. per ton, including all charges up to the time of delivery. The percentage had been 10s. against 13 per cent. in 1868, but there had been a reduction in the wages and the price of wood. The great disadvantage to the property of the company had been the low price of copper, which still continued—a moderate advance of only 10s. per ton would make all the difference to the company, making, as it did, 45 tons per month; such an advance would have given an additional profit from Nov. 30, 1868, to Aug. 31, 1869, of about 5000l., whilst even such a rise would not bring copper up to the average price that had ruled during the last 10 years, only two or three years since they were realising 90s. as against 62s. 10s. per ton at the present time. The perpetrators of the fraudulent telegram had been traced, but not yet apprehended.

After some discussion the report and accounts were adopted. A vote of thanks to the Chairman and directors terminated the proceedings.

NEVADA LAND AND MINING COMPANY.

The second ordinary general meeting of shareholders was held at the Terminus Hotel, Cannon-street, on Dec. 8.

Mr. E. L. NUGENT in the chair.

The report was taken as read.

The CHAIRMAN said that difficulties had arisen, in the first place, in consequence of the tail-race made by the old company having to be replaced by a new one, seven miles in length. The manager had now made satisfactory arrangements with the neighbouring landowners, so that the cost to the company was not great. This tail-race was finished in April last, and the mill commenced work in May; but finding that the ores from Humboldt could not be crushed by the wet process with a satisfactory result, the manager advised the board of his determination to erect furnaces [which are referred to in another column]. With regard to the Alpha Mine, the Chairman explained that while Mr. Dunne was in England the propriety of acquiring possession of a mine was considered, and this arrangement, as would be seen by the report, was concluded. Some of the ore already shipped assayed in value about \$500 per ton, and the aggregate assay value of 36 tons shipped during September of ore was \$12,500. The mine was said to be a valuable acquisition to the company. A large quantity of ore, it would be seen, had already been raised, and the manager was in communication with the board as to the propriety of shipping further ores to Swansea. The North Sheba Mine, referred to in the report, had been secured by Mr. E. Dunne by deputation.

The CHAIRMAN then pointed out the principal items contained in the accounts, and calling attention to the state of the share account, and the balance of capital yet unused, moved that the report and statement of accounts now presented to this meeting be received and adopted. The motion was seconded by Mr. SWINTON.

A SHAREHOLDER suggested the advisability of issuing monthly reports to the shareholders, and obtaining an official quotation of the company's shares on the Stock Exchange. It was also suggested that on the receipt of telegrams their purport should be made known to the shareholders.

Mr. WHITT called attention to the fact that "should be taken by the directors in not prosecuting work on the Whitmore Mine until the completion of the purchase of the Alpha Mine is effected." To this Mr. SWINTON replied that it was not the intention of the directors to prosecute the Whitmore Mine at present, and that the board kept steadily in view the policy of paying off debts before declaring a dividend. The report and accounts were then adopted.

Sir John Campbell Lees was elected a director in the room of Major-General Rigby, and Mr. Edward Clavey Griffith in the room of Mr. G. P. Whitworth. Mr. T. H. Chapman was re-elected auditor.

The sum of 400l. was voted to the directors for their services during the past two years.—A vote of thanks to the Chairman terminated the proceedings.

NEW DEVON CONSOLS COPPER MINING COMPANY.

The sixth annual general meeting of shareholders was held at the offices, Coleman-street-buildings, on Thursday.

Col. JAMESON in the chair.

The report of the directors stated that the liabilities to be met amounted to 784l. 2s., chiefly the balance for purchase of the mine. The directors would have been able to meet the same if the calls had been paid; they have, therefore, made a call of 1l. per share, payable on or before Jan. 5. The directors periodically visit the mine in turn to watch its progress. Mr. Seton has lately returned from his visit, and reports that, in his opinion, everything is being carried on by Captain Hancock in a thoroughly miner-like, and at the same time economical, manner. Mr. Seton is still sanguine of a good lode in the 45, from present indications in the shaft.

The CHAIRMAN moved that the report be received and adopted. Mr. WALLIS seconded the proposition.

A letter was read from Capt. Hancock to the effect that, if Trewollock failed in making a good mine, he was at a loss to know where to find one.

It was agreed that the shaft should be sunk to the depth of 45 fms., at which point Capt. Hancock expected to cut a good lode.

Col. Jameson was re-elected director, and Mr. Addis appointed auditor.

The usual compliment to the Chairman concluded the proceedings.

EAST NEW WHEEL LOVELL MINING COMPANY.

A quarterly meeting of shareholders was held at the offices, Old Broad-street, on Thursday, Mr. EDWARD COOKE in the chair.

Mr. A. E. COOKE (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts showed a debit balance of 334l. 14s. 8d.

The following report from the agent was then read:—

Dec. 15.—Since our last meeting we have completed the erection of the engine, put it to work, and sunk the engine-shaft 3 fms., making in all 10 fms. from surface; at this point we have cut one of the lodes, which is 2 feet wide, composed of gossan, pebbles, and stones of tin—a very promising lode. In the north part of the set we have been put to a great expense in draining the surface water before we could sink a shaft on the course of the East Lovell lode; this is now completed, and the shaft in course of sinking; it is now down 6 fms. from surface, in good ground for the production of tin, being decomposed granite, the same description as the tin makes in the adjoining mine, East Lovell. There has been erected a smith's and carpenter's shop, and the men are now taking out foundation for bolt-pit at the engine-shaft, in order to attach a line of rods to command the deeper working of the north or East Lovell lode. Our object for the next four months will be to push on the shaft on the East Lovell lode as fast as possible, in order to see the lode at the intended 20 fm. level, where there is every reason to believe we shall meet with something valuable.—CHARLES BAWDEN.

The CHAIRMAN, in drawing attention to the balance-sheet, explained that a large expenditure had been incurred in connection with the erection of the new engine. It was not too much to say that the expenditure on account of merchants' bills alone during the last three months was equal to the future working cost of the mine. He need hardly say that he would never allow himself to be associated with any enterprise that was not kept in a sound financial position, and, therefore, he would suggest that a call be made sufficient to liquidate the debit balance, and provide for the working cost during the next four months. All interested in the enterprise were fully aware of his (the Chairman's) opinion as to its future, and, therefore, he would content himself by simply directing attention to the fact that it was traversed by the famed Old Lovell lode, which was said to have given about 180,000l. in profits, a circumstance, he considered, in itself sufficient to justify the sanguine anticipations so generally entertained as to the future of East New Lovell.

A SHAREHOLDER asked what were the general characteristics of the district as to its ore-bearing depth? Mr. BAWDEN (the manager) explained that the district was proverbial for producing shallow bunches of tin, and he fully believed that the 20 fathom level in New East Lovell would throw a very favourable light upon its future value. In addition to the fact mentioned by the Chairman, that the set was traversed by the celebrated Old Lovell lode, he (Mr. Bawden) might add that it had also the presence of the East Lovell lode, now so productive in that mine. One shaft was being sunk on the East Lovell lode, and the other upon the Old Lovell lode.

Mr. PETER WATSON thought it as well to state that, although the district was proverbial for shallow deposits of tin, they maintained their productive character, as was the case in Old Lovell, to a depth of 180 fms. He believed that this district was at present in its infancy.

Mr. BAWDEN, in reply to a question, stated that every liability was charged. Mr. PETER WATSON said that as East New Lovell was the pioneer mine eastward it was impossible to say what results it would realise, the more especially as the indications were so exceedingly encouraging.

The report was received and ordered to be entered on the minutes, and the accounts were passed and allowed.

The SECRETARY, in reply to a question, stated that the accounts were charged up to the end of October, that being as close as is possible.

Mr. BAWDEN mentioned that within four months the lode would be seen at the

20 fm. level, so that at the next meeting he hoped to have something satisfactory to communicate.

A call of 3s. 6d. per share was made.

A vote of thanks was passed to the Chairman, which concluded the proceedings.

GREAT WHEEL VOR MINING COMPANY.

The accounts to be submitted at the quarterly meeting show—

Black tin sold, Aug. 21	£3342 7 1
" " " " " " " "	8335 12 0
" " " " " " " "	2969 13 1
Sundries	21 5 2=£10,197 0 4
Mine cost—July, August, and September	£4921 5 7
Merchants' bills	2207 19 11
Dues	548 19 3
Sundry payments, including London expenses	231 17 10=7,910 2 7
Leaving balance (profit)	£ 2286 17 9

A supplemental statement will be exhibited at the general meeting, showing the financial position of the company's affairs up to that day. The ground sunk and driven for three months was 45 fms. 4 ft. 9 in.

ST. JOHN DEL REY MINING COMPANY.

The general meeting of shareholders will be held at the London Tavern, on Wednesday, when the directors will report the progress of the company's operations during the past half-year.

The work in hand for re-opening and working the Bahu and West Cachoelra Mines in depth has been carried on with energy during the half-year, and fair progress has been made. The work completed to the date of the last advices, Oct. 29, was—A shaft had been sunk 40 fms. 2 ft.; B shaft 37 fms. 5 ft. 6 in. The necessary amount of timberwork for lining and dividing the shafts down to the point at which the rock became solid had been completed, and the brattice or division in shaft A had been continued down nearly to the bottom of the shaft, below the lining. The average cost of sinking these shafts, and the surface works connected therewith, and for adapting the machinery to the new mode of working the mine, from the commencement of the work to the end of September, has been 121d. per fathom. The average, however, during the last six months of the period has been rather lower—117d. per fm.—but no sinking was accomplished during one of those months. The monthly produce of gold from March 23 to Sept. 22, both days inclusive, has been—Morro Velho, 62,073 oits.; Gaia, 6344 oits.—=67,417 oits. In the 184 days. The produce for the six months immediately preceding (181 days) was 63,234 oits., and for the corresponding period of 1883 (185 days) 68,172 oits. The average daily produce during those three periods has, therefore, been—366-3 oits., 349-2 oits., and 368-5 oits., respectively. These figures show that, though the half-year now reported on has been one during which the general operations have been impeded to an unprecedented extent by diminished water-power, the average daily produce from the Morro Velho Mines exceeded the daily produce of the preceding half-year by about 10 per cent., and the produce of the corresponding period of 1863 by 7½ per cent., though during the last-named period the rainfall exceeded the average. The Gaia produce shows, however, a progressive decline, the best part of the Gaia lode, which was being quarried in 1863, not having been accessible during the half-year. The profit on working Morro Velho Mines during the half-year—£1804 13 5

The total amount of expenditure over receipts on the Fernam Pass Estate for the half-year—1080 13 2

Leaving net profit on both accounts—£ 724 0 3

It may be remarked, however, that the loss incurred, as above shown, on the Fernam Pass Estate has not been incurred in the ordinary working of the Gaia and Gabroba Mines. Upwards of 5000 lbs. has been expended in plant, &c., for the Gabroba Mine, and the expenditure at the Gaia Mine, has been to a considerable extent on dead works. From the several statements made, it appears that the sections of the mines from which ore is now obtainable have supplied about the same quantity of mineral during these compared periods, but that the mineral has been of better quality during the past six months, having given 290 oit. per ton, or 14 per cent. more gold than during the preceding half-year; and that the gold contents of the refuse which was uncovered has not materially varied during the period here commented on, about the same quality of mineral having been operated on; and, further, that the loss as shown by the two modes of ascertaining the same approximately agree. In should be noted, however, that the loss, as shown by these two modes, is the loss in the first treatment of Morro Velho stamps and arrastres. The financial position of the company at the close of the half-year, Nov. 30 in London, and Sept. 28 and 30 (the date of the last accounts received) at Morro Velho and Rio de Janeiro, was—In England, cash at Messrs. Barclay and Co., £201, 5s. 9d.; ditto at interest, 4000l.—4720l. 5s. 9d. Estimated proceeds of gold from Jan. 15, 11, 1869, to pay, drafts running to maturity between Dec. 1 and Feb. 29, 1869, in Brazil, cash at Morro Velho on Sept. 28, towards the expenditure of October, 1869, 5s. 7d. The value of the stores in stock at Morro Velho at the close of the half-year was Rs. 296,540, being, at 1s. 7d. per milreis, 23,025l., and there are further stores shipped in this country, and in transit to Morro Velho, for which the sum of 2908l. has been paid, in first cost, freight, duties, and carriage, making a total of 25,933l. worth of materials in stock, paid for, and available for the general purposes of the company's mines in Brazil, against 25,125l. at the commencement of the half-year. The reserved fund amounts to 41,812l. 8s. 6d., after the payment thereof of 9000l. for new shaft expense.

FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY.

The half-yearly general meeting of shareholders will be held on Dec. 28. The report to be submitted states that, for the first time since the commencement of the company, the mines are working at a profit—the six months' working ending June 30 showing a profit amounting to 1369l. 11s. 5d., after paying all expenses, and writing off 232l. 7s. for depreciation of plant and machinery. Owing to the profit and loss account being entirely correct, the necessary expenditure for property development has not been entered in the profit and loss account, but may be appropriated in reduction of the balance of 7205l., standing to the debit of profit and loss account. The directors, however, have every reason to believe that the profits the mines are now realising will enable them to discharge the balance of this account, and thus render the future profits available towards dividends. The directors do not doubt that with a gradual extension of the stamping-power, and an efficient and economical working of the mines, the company's property will henceforth show a steady and progressive improvement. It will be the object of the directors to continue from time to time to erect additional mills on those lodes where a continual supply of water can be obtained even in the dry season, thus rendering the returns as nearly as possible equal throughout the year. Looking to the present position and prospects of the company as to what they were two years since, the directors cannot but feel that the shareholders have reason to congratulate themselves on the present improved prospects opening out.

CAPULA SILVER MINING COMPANY.

The half-yearly meeting will be held on Tuesday. The report of the directors states that the expenditure during the nine months amounted to 6274l. 13s. 4d., which includes 7500l. 3s. 4d., the cost of reducing the silver ores, and 10857l. 0s. 6d., on account of the hacienda. The ore raised amounted to 1793 cargas (about 240 tons), from which 1100 cargas (about 147 tons) have been reduced, producing 21 bars of silver, value 9,782-8s., or 3956l. 11s. 2d., which amount has been brought into the account, leaving 628 cargas (about 80 tons) on hand. The average produce of the ore reduced is about 120 ozs. of silver to the ton; with the limited means of reduction possessed by the company the directors cannot but regard the result as highly satisfactory. The result of the appeal to the shareholders to take up debentures to complete the reduction-works fell far short of the amount voted to be raised, notwithstanding the directors did, with the consent of the subscribers, allot the amount of 4600l., in accordance with the terms of the resolution, in the hope that the results from this subscription, aided by the produce of the ore raised, would be sufficient to provide for the work at the mine. A question having, however, arisen on the part of the original owners of the mine regarding the delivery of the accounts, has led to a somewhat lengthened correspondence between him and the board. The directors, therefore, did not feel themselves justified in making use of the money subscribed, so long as any question with the owner remained unsettled, and the funds received (being the first instalment) remain at the present time in the hands of the bankers. The directors confidently look forward to a prompt and satisfactory settlement of the question, and information to that effect may be expected in the course of the present month. The progress made in laying open the ground and in the extraction of the ores has been satisfactory, notwithstanding that many difficulties have had to be overcome, which caused obstruction to the progress of the works, in consequence of the miners employed having struck for increased remuneration. The strike had continued for several weeks, and the miners not only refused to work themselves, but prevented others from filling their places. The directors have, however, the satisfaction to report that at the date of Capt. Paul's last advices (Nov. 7) the miners had returned to work for their usual pay, and that the operations at the mine would, therefore, be resumed immediately after that date. That a strike should have occurred is to be regretted, especially as the mine would have yielded a profit on the working had the extraction of the ore been continued regularly.

NEVADA FREEHOLD PROPERTIES TRUST.—The trustees have received a long report from their colleague, Mr. T. E. MONK MASON, who has just completed a careful personal examination of the several properties belonging to the Trust. He reports that his examination has fully impressed him with the value of the properties, and is convinced that the representations that have been made regarding them are not only in the main true, but that much more might truly have been said of their merits. A mine of the magnitude of the Vanderbilt, and of its uniform valuable quartz, capable, as it is, of supplying a large mill for an indefinite time, of itself constitutes a valuable mining property; but such mines as the Vanderbilt, Andy Johnson, Gould and Curry, Glasgow and Apollo, together with the remaining properties of the Trust, form a combination insuring success. His opinions of these mines have been formed after a careful examination of those of successful companies at Belmont, at Reese River, and of the Murphy Mine, at Twin River. All of the Twin River Mines of the Trust are similar in character to this latter mine; and, judging from the croppings, there is just reason to believe that their workings will be as successful.

THE GOLD MINING COMPANY OF YUBA.—Since the general meeting several shareholders have expressed their wish to take more shares if the payment could be postponed until after the end of the year. Under these circumstances, and seeing that the machinery cannot be removed to the mine until the winter has broken up, and that, therefore, the cash is not actually required for some time, the board have decided to give the existing shareholders the opportunity of subscribing for the remaining shares by instalments extending until April 30, 1870. The amount of capital already subscribed is 4000l., and promised subscriptions will bring the amount up to 5000l., so that there remains 2000l. to be subscribed.

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GEOLOGICAL SOCIETY OF LONDON.—Dec. 8: (Prof. T. H. Huxley, LL.D., F.R.S., President, in the chair.) Charles E. De Ranee, of the Geological Survey of England and Wales; John E. Taylor, hon. secretary, Norwich Geological Society, Bracondale, Norwich; Rev. George Henslow, M.A., F.L.S., St. John's Parsonage, St. John's Wood; C. J. A. Meyer, 8, Church-buildings, Clapham Common; J. Harper, Claremont House, Chaucer-road, Dulwich; John Yeats, LL.D., Clayton-place, Peckham; J. S. Holden, M.D., Gienarm, county Antrim; David Robertson, 4, Regent's Park-terrace, Glasgow; Walter Butler, F.L.S., Wanganui, New Zealand; and J. H. Collins, Royal Institution of Cornwall, Truro, were elected fellows of the society. The following communications were read:

1.—"Notes on the Brachiopoda hitherto obtained from the Pebble-bed at Budeleigh Salterton, near Exmouth, Devonshire," by T. Davidson, F.R.S., F.G.S., &c.
2.—"On the Relation of the Boulder-clay without Chalk of the North of England to the Great Chalky Boulder-clay of the South," by S. V. Wood, Jun., F.G.S.
On Wednesday evening the following communications will be read:—1. "On the Iron Ores associated with the Basalts of the North-East of Ireland," by Ralph Tate, F.G.S., and J. S. Holden, M.D., F.G.S.—2. "Note on the Skull of the Large Kimmeridge Cretaceous, *Dakosaurus maximus*, Quenstedt, *Stenoceras*, Geoff. St. Hilaire," by J. W. Hukle, F.R.S.—3. "Note on a Fragment of a Jaw with Peculiar Teeth from Kimmeridge Bay," by J. W. Hukle, F.R.S.—4. "Notes on the Structure of *Sigillaria*," by Principal Dawson, F.R.S., of Montreal.—5. "Notes on some New Animal Remains from the Carboniferous and Devonian of Canada," by Principal Dawson, F.R.S.

THE NEW STANNARIES ACT.

IMPORTANT OPINION OF COUNSEL.

In consequence of the remarks made by the Vice-Warden of the Stannaries at the recent meeting of the Court, as given in the *Mining Journal* of December 11, in which he intimated his opinion that the new Act is not retrospective, the following case has been submitted to counsel, by Mr. T. Cornish, of Penzance:—

Herewith is a copy of the Act for Amending the Law relating to Mining Partnerships in Cornwall. Sir Robert Collier kindly assisted the County Committee in passing it last session, and Mr. Kingston advised them on it.

At a recent sitting of his Court, the Vice-Warden of the Stannaries drew the attention of the legal gentlemen present to a notice which he observed in the newspapers, to the effect that the shareholders in an old mine proposed to forfeit certain shares under clauses 16 to 17 of the new Stannaries Act.

His Honor said:—"It does not appear that it is proposed to proceed under any rules of the company, written or unwritten, and without this, the mine being an old one, it is very doubtful whether the shareholders have any right to declare forfeitures or deal with the shares. I mention the matter here because these things may come before me, or before the practitioners of the Court, in the way of consultation or otherwise. Existing mines, as a general rule, if not registered, are formed on the Cost-book System, and that system will not, without some special provision, justify the forfeiture of shares without payment of interest, expenses, &c. As a general rule of law no Act of Parliament shall be construed to vary pre-existing contracts; in other words, no Act of Parliament will operate retrospectively unless there be clauses or provisions specially shewing that the Act is to be retrospective or necessarily implying such operation. The new Stannaries Act has no such clause, and section 7 seems to provide that nothing done under the Act shall be at variance with the provisions of any existing company. In companies formed since the Act the case may be different, and the forfeiture clauses will apply. The point is important and if legal opinion differ it is desirable that it should be settled by a superior court. Meantime the companies will in such cases act on their own responsibility."

There was no case before the Court when the foregoing observations were made, and they consequently lack the weight of a judicial opinion given after argument; but, coming from so high an authority on matters of mining law, and differing so completely as they do from the general opinion as to the effect of the Act, they have naturally alarmed the public, and the committee have consequently resolved upon taking the opinion of counsel, in consultation, as to the legal construction of the clauses in question.

Counsel of course know that all cost-book companies in Cornwall work under customary or unwritten rules and regulations, and before the Act passed some worked under written rules and regulations which controlled the customary ones. The question raised for the consideration of counsel is—whether, looking at the title of the Act, to the definition of the term "company" in the Act, and to clause 7 of the Act, sections 16 and 17, apply to the cost-book companies existing at the time of the passing of the Act.

The following is the reply:—
We are of opinion having regard to all the provisions of the Stannaries Act, 1869, that Sections 16 and 17 of that Act, apply to cost-book companies existing at the time of the passing of the Act.
R. P. COLLIER.
Temple, Dec. 7, 1869. F. H. KINGDON.

Original Correspondence.

ROSEWALL HILL AND RANSOM UNITED.

SIR,—I have observed the remarks of "A Shareholder," under the head of Notabilia, in last week's *Journal*; but having the last statement of accounts before me, and comparing it with previous ones, I cannot for the life of me see any cause for congratulation. Nor do I think it very wise on the part of "A Shareholder" to raise in any way to the payment of full dues, for however well disposed the lords of the property may be towards us, I fear that some lynch law will not lose the prey. In the last report I find the following:—"We estimate our returns of tin for the ensuing quarter, from present prospects, to be about 24 tons." Now, this quantity, assuming it be realised at 65l. 10s. for tin, the present price (and I fear it will be much lower ere our next quarterly meeting), will amount only to 1572l. I have had reliable information upon the working of the property, and I am assured that it cannot possibly be properly prosecuted for a less sum than 1800l. per quarter, although the three months' cost to end September is given us as 1533l. 4s. 3d., without any banking charges, which were set down in the account to end of June at 71l. odd.

The old proverb says, "It's too late to close the door after the bird has fled," but I say "Whilst there is life there is hope." Let us have our supplies in the cheapest market, make an appeal to the lords for an entire remission of dues during the existing poverty of the mines, and call upon the defaulting shareholders (whereby we may be enabled to discharge our debt at the bank, and get rid of the heavy charges on the way to the payment of full dues, for operation. I would also add that the statement of assets and liabilities is not satisfactory to those who have long ago paid their calls. I contend that, according to the new Stannary Law Amendment Act, the pursuer is bound to publish a correct balance-sheet, particularly the amount due to each creditor, as well as from each debtor; they must be imperative. I would say, in conclusion, my firm conviction is that, instead of being in a position to congratulate ourselves at next meeting upon a profit of 2000l. or 3000l., we shall have to bewail a loss of 8000l. or 4000l.—Dec. 16. R. H. B.

[ADVERTISEMENT.]

VIRTUOUS LADY MINE.

SIR,—This mine is improving every hour; further important discoveries have been made, and several fresh tribute pitches set are looking exceedingly well, and yielding rich copper ore. I now send copy of Dr. Phipson's analysis:—

ANALYSIS MADE FOR VIRTUOUS LADY MINE, TAVISTOCK.

Laboratory of Analytical Chemistry, 4, The Cedars, Putney, London, Dec. 13.

Samples of Virtuous Lady ore. Assay for copper and silver of six samples, taken from a block weighing about 5 cwt.:

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
Copper	10.9	10.9	8.2	12.17	11.1	2.5
Silver	0.25	0.25	0.25	0.25	0.25	0.25

Late of the University of Brussels, Member of the Chemical Society of Paris.

The six samples give an average of 16½ per cent. copper, and 8½ ozs. of silver to the ton; but let it be perfectly understood that the lower products were picked poor samples from the poorest part of the rock, the "peachy" portion of it, and that three-fourths, at least, of the rock will yield the higher products. I consider that the 5 cwt. crushed down would not produce less than 20 per cent. Mr. Harvey, the well-known assayer of Tavistock, tested about a pound knocked off the same rock, which gave 22 per cent. copper, and 10 ozs. of silver per ton.

A few weeks since I predicted that the shares would be up to 5s. by New Year's Day, and I have no wish whatever to qualify my statement. Yes; and now that the water is out, and we have a chance of examining the lodes, and their bearings, &c., I tell you for a stern certainty that before Midsummer-day next there will be a clamorous demand for them at 10l. Some of you practical men who have quietly (the most injurious to the founders of a company) rallied against the mine, with not sufficient pluck to come forward and give sensible scientific reasons for so doing, make note of that, and ponder well over the whole. My writings come from the heart—an honest heart—whatever you may think or say, and the few leisure hours I can afford to spend in philosophical researches have taught me that nothing but a very extraordinary freak of nature would allow thistles to yield figs—and, on the other hand, it cannot be called a prophecy to predict that a good healthy-bearing vine should bring forth grapes in due season. I should like to take credit for being a bit of a prophet in the following little matter—I did state that when the vine was fairly borne down with its weight of fruit, there would be many who could not reach to obtain it to declare the grapes to be sour; how many have you not stated, and found them to be most luscious, know this to be a false doctrine. No doubt the cap will fit, and only fit those for whom it is intended. Now that the battle is fought and won, I would mention to the world the wickedness of those who had pledged their faith to me, and yet who, to put a few pounds immediately in their own pockets, would have ruined me and the whole affair. In my earnestness and faith in a perilous voyage, as it were, and its results, I consented to embark and take the all-important and responsible post of helmsman in a frail barque, yet heavily laden with nothing less than bullion. Some of you even knew and believed in the value of our cargo; but a storm overtaking us, and, having no faith that the vessel would weather it, what did you do? In your fear and faithlessness in both me and the barque, you in numbers madly wrenched the helm from my grasp—what was the consequence? the ship immediately veered round. None of you could box the compass, and I threatened to founder the vessel, and lose my own life with yours, if you did not at once take to the life-boat, and leave me to my fate, either to be shipwrecked by myself or save the vessel. Having rid me of you—and, recollect well, you knew you took a little of the bullion with you in the boat (as much as safety would permit), and a good stock of provisions, which had been provided before commencing the voyage entirely at my cost—I took my part again at the helm. One or two faithful ones preferred to share my fate for weal or woe, and with their help in trimming the sails, my

close and steady steering, the weather moderating, and a fair wind right abaft of us we have got the barque into smooth water, and shall soon be safe in dock and the cargo landing. Analyse this little bit of nautical as you will. A friend or two wish to observe that my letter of last week was nothing but an arithmetical problem, forgetting that the valuation of a lode can only be arrived at by arithmetical calculations, viz.—rule of three and practice, with perhaps a little sub-division. Call this nautical matter another one—do whatever you will, and you can arrive at but one conclusion. Cannot you solve the problem? Would you like to know? Shall I tell you? Well, I will—it is no secret—my faithful ones and I have got all the bullion.

All compliments of the season to the "bears." I have served three or four of them with writs for rather heavy cash balances, on account of non-delivery of shares; but business must be business even in the festive season, and perhaps, like a burnt child, they will in future keep away from the fire.

5, Abbey Mead, Tavistock, Dec. 16.

THOS. P. BARNARD.

[For remainder of Original Correspondence, see this day's Supplement.]

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

Plympton St. Mary, Devon.—It is very gratifying to think what good results have lately accrued from mining in this district. Up to the present time the young mine, Wheal Mary Hatchings, has sold about 11,000l. worth of tin at the shallow depth of about 20 fms. from surface, and the bottom of the mine still opening out rich. As a tin mine, this may be fairly classed as the first in Devonshire, and hardly less so in the two counties. As joining this mine another company have started the Homerdon United Mines, the principal lodes of which run through the same set, and, from present indications, promises to turn out equally as rich and prosperous as the other.

HOLMBUSH AND KELLY BRAY UNITED.—Since the meeting of this company's directors, at which a dividend was declared, the value of the mine has been greatly enhanced by the cutting of the lode rich in the 45 fm. level at Kelly Bray, a still further proof that the inspecting agents were right in stating the mine to be the most promising in the county of Cornwall.

WHEAL ARTHUR.—A serious accident occurred at this mine to a poor boy about 13 years of age, son of John Annear, miner, his foot was caught in the wheels of the stamps, and nearly torn off; he was mangled in a shocking manner.

COLLACOMBE (Devon).—This mine is to be worked again, under the management of Capt. Joseph Richards. The mine never ought to have been stopped; but it seems that some difference arose between the lord's lawyer and the adventurers, and this, with the bursting of a boiler, led to the suspension of the mine, although large quantities of ore were being sold at the time. More complete particulars concerning the re-working of the mine will doubtless appear shortly.

NEW GWYNFFNYDD GOLD MINES (near Dolgelly).—It is expected that the machinery will be completed by Christmas, so that the stamping will commence with the new year. All the shares have been taken up by most influential parties, who preferred investing their capital in works which they could personally inspect. We understand that the first general meeting will be held early in January.

WEST TRESELLYN (Altarnun).—This sett, situated in the tin mining district of Altarnun, and known as Scaddick Hill, has been obtained at 15th bids by an influential party of *bona fide* investors; and operations will shortly be commenced, when immediate returns of tin of ample quantity can be made at a trifling outlay, there being ample water-power for all purposes, the River Dranes running through the sett, which can be easily made available. This sett, which is an extensive one, immediately adjoins the Trevellyn Tin Mine, where operations have commenced; and most of the rich lodes opened on in this mine are known to run through the entire ledge of the sett, which, to judge from the many applications for it, must be considered a very valuable one.

OBITUARY.—A large circle of friends will regret that we have to announce the death of Capt. W. Cocks, of West Prince of Wales Mine; and of Captain Tratten, of New Great Consols, both of consumption.

BOILER EXPLOSION AT CLIFFORD AMALGAMATED.—The boiler of Mitchell's wharf-engine (Clifford Amalgamated) exploded on Tuesday morning, at 7.15, at Mitchell's, aged 17 years. The boiler was quite sound and entire, and with the bricks and fire-bars inside, it is supposed to weigh about 3 tons. This was thrown a distance of 100 yards, the roof of the engine-house was blown off, the side wall of the engine-house blown down, and much of the internal machinery mutilated and destroyed. There is, however, another engine on the mine which can speedily be put to work. Mr. H. Harris, of Redruth, one of the surgeons of the mine, was in attendance. At the inquest it was stated by Mr. Hocking that the boiler had been corrected two or three times since February, the last time being on the previous Thursday, but he considered that it was a good boiler. It was cleaned in the usual way about two months ago, and there was nothing in the state of the plates then to call for any observation. It had been placed where it was about six years ago, a new tube being placed in it, but the case was an old one. He had examined the tube since the explosion, and found it perfect, from which he was satisfied that the cause of the explosion was not want of food. A verdict of "Accidental Death" was returned.

MINE ACCIDENT—CHARGE OF MANSLAUGHTER.—At Menheniot, Thomas Willis and Thomas Kennedy were charged with killing William Greet, at Wheal Mary Ann, on Dec. 6. It appeared that the prisoners, deceased, and a girl had been to examine the man-engine, got playing, and the deceased ultimately got his head under the balance-bob. The prisoners were not committed for trial, but the witnesses' expenses were allowed.

THE CORNISH MINE SHARE MARKET.—The reduction in the tin standard on Monday last, although it has not generally affected the quotations of mine stock to any appreciable extent, has, together with the business of the settling, caused the dealings in the Cornish Mine Share Market during the week to be on a very limited scale. There are, however, as yet no indications apparent among holders of tin stock of their having less faith in the stability of the present prices for that metal, which, notwithstanding the slight reaction referred to above, cannot now be regarded as unremunerative to the miner.

At Wheal Seton meeting, on Monday, a loss was shown on the two months' working of 391l. A balance in favour of the adventurers was carried forward of 207l.

The West Basset and South Frances cases (Lyle v. Richards and others) referred to Mr. Kingston, Q.C., upon an order made by Mr. Baron Channell, by which the arbitrator was to determine whether the sum of 525l. paid into Court by South Frances, to cover damages for trespasses committed to the north of a line of boundary to be drawn from the north-east corner of Vincent's house to the bound-stone of the north-west extremity of South Wheal Basset sett, was sufficient, and if not to what sum the nominal verdict for 10,000l. should be reduced, and at what further sum beyond the 525l. the damages should be assessed; and according to his finding as to the insufficiency of the 525l., or otherwise, then to direct the verdict to direct the verdict on South Frances should stand; or in case he should find and award that the sum of 525l. was not sufficient, then to direct a verdict for West Basset for such sum beyond the 525l., as that sum should, in the judgment of the arbitrator, be found by him insufficient to cover the trespasses. Upon this reference Mr. Kingston has awarded that the sum of 525l. is sufficient, and he directs that the verdict ordered for South Frances should stand; he also orders that the plaintiff (West Basset) should pay to the defendants (South Frances) their costs of the reference; and also orders them to pay the costs of the award, and bear their own costs of the reference.—*West Briton*.

TREATING CAST-IRON.—The invention of Mr. W. M. LYON, of Pittsburgh, U.S., consists in mixing pulverised carbonaceous matter either with or without pulverised oxides with molten cast-iron, so as to produce a conglomerate mass, which is then treated in the furnace for the production of either wrought-iron or steel.

NOVEL STAMP MILL.—A stamp mill, upon the improved model designed by Messrs. Hotchkiss and Gardner, is about to be erected at White Pine, United States. It is a six-stamp mill, and has six pistons, the power being applied to a pulley, the same as in an ordinary battery, with a balance-wheel on the other end of the shaft. There is an air chamber in the top of the stamp, by which the force of the blow is to be increased, and the compressed air is claimed to help to lift the stamp. The pistons are packed with leather packing. Driven by a 16-horse power engine, it will easily acquire a speed of 200 blows per minute for each stamp, and one now running strikes 350 strokes per minute.

Creditors of the Royal Forest of Dean Mining Company (Limited) are required to send the particulars of their claims to Messrs. Higgins and Hall, the official liquidators, at Worcester, by Dec. 30—Jan. 11 having been appointed by Vice-Chancellor Malins for adjudicating upon them.

ADVANTAGES OF BOOKS.—Without Books "Justice is dormant, natural science at a stand, philosophy lame, letters dumb, and all things involved in Cimmerian darkness." The CHOICE READING AND PRESENTATION BOOKS mentioned below are offered by the firm of S. and T. GILBERT at the net prices quoted:—*Alfred Tennyson's* new book, *Story of King Arthur* (forming the second series of *Idylls of the King*), fcap., cloth, 5s. 10d., published at 7s., postage 3d. Beautiful Women, a series of fine Photographs after Paintings by Sir John Everett Reynolds and others, folio, elegantly bound, 34s., published at £2 2s. *Idylls of the King*, the superb edition, 37 steel plates, folio, elegantly bound, £3 10s., published at £3 13s. 6d. *Normandy Picturesque*, by Henry Blackburn, with illustrations, 8vo., cloth gilt, 13s. 4d., published at 16s., postage 10d. *W. H. Russell's Diary in the East*, with wood cuts and coloured plates, 8vo., cloth, 17s., published at £1 1s., postage 11d. *Good Words for the Young*, the yearly volume, complete, 8vo., cloth gilt, 6s., published at 7s. 6d., postage 1s. The *Choicest Pieces* from Thomas Hood, Doré's *Exquisite Edition*, with nine engravings on steel, folio, 17s., published at 21s. *Boys' Own Book*, an autotype reproduction of the most important works, folio, cloth, 14s., published at £2 2s. *Idylls of the King*, the superb edition, 37 steel plates, folio, elegantly bound, £3 10s., published at £3 13s. 6d. *Normandy Picturesque*, by Henry Blackburn, with illustrations, 8vo., cloth gilt, 13s. 4d., published at 16s., postage 10d. *W. H. Russell's Diary in the East*, with wood cuts and coloured plates, 8vo., cloth, 17s., published at £1 1s., postage 11d. *Good Words for the Young*, the yearly volume, complete, 8vo., cloth gilt, 6s., published at 7s. 6d., postage 1s. The *Choicest Pieces* from Thomas Hood, Doré's *Exquisite Edition*, with nine engravings on steel, folio, 17s., published at 21s. *Boys' Own Book*, an autotype reproduction of the most important works, folio, cloth, 14s., published at £2 2s. *Idylls of the King*, the superb edition, 37 steel plates, folio, elegantly bound, £3 10s., published at £3 13s. 6d. *Normandy Picturesque*, by Henry Blackburn, with illustrations, 8vo., cloth gilt, 13s. 4d., published at 16s., postage 10d. *W. H. Russell's Diary in the East*, with wood cuts and coloured plates, 8vo., cloth, 17s., published at £1 1s., postage 11d. *Good Words for the Young*, the yearly volume, complete, 8vo., cloth gilt, 6s., published at 7s. 6d., postage 1s. The *Choicest Pieces* from Thomas Hood, Doré's *Exquisite Edition*, with nine engravings on steel, folio, 17s., published at 21s. *Boys' Own Book*, an autotype reproduction of the most important works, folio, cloth, 14s., published at £2 2s. *Idylls of the King*, the superb edition, 37 steel plates, folio, elegantly bound, £3 10s., published at £3 13s. 6d. *Normandy Picturesque*, by Henry Blackburn, with illustrations, 8vo., cloth gilt, 13s. 4d., published at 16s., postage 10d. *W. H. Russell's Diary in the East*, with wood cuts and coloured plates, 8vo., cloth, 17s., published at £1 1s., postage 11d. *Good Words for the Young*, the yearly volume, complete, 8vo., cloth gilt, 6s., published at 7s. 6d., postage 1s. The *Choicest Pieces* from Thomas Hood, Doré's *Exquisite Edition*, with nine engravings on steel, folio, 17s., published at 21s. *Boys' Own Book*, an autotype reproduction of the most important works, folio, cloth, 14s., published at £2 2s. *Idylls of the King*, the superb edition, 37 steel plates, folio, elegantly bound, £3 10s., published at £3 13s. 6d. *Normandy Picturesque*, by Henry Blackburn, with illustrations, 8vo., cloth gilt, 13s. 4d., published at 16s., postage 10d. *W. H. Russell's Diary in the East*, with wood cuts and coloured plates, 8vo., cloth, 17s., published at £1 1s., postage 11d. *Good Words for the Young*, the yearly volume, complete, 8vo., cloth gilt, 6s., published at 7s. 6d., postage 1s. The *Choicest Pieces* from Thomas Hood, Doré's *Exquisite Edition*, with nine engravings on steel, folio, 17s., published at 21s. *Boys' Own Book*, an autotype reproduction of the most important works, folio, cloth, 14s., published at £2 2s. *Idylls of the King*, the superb edition, 37 steel plates, folio, elegantly bound, £3 10s., published at £3 13s. 6d. *Normandy Picturesque*, by Henry Blackburn, with illustrations, 8vo., cloth gilt, 13s. 4d., published at 16s., postage 10d. *W. H. Russell's Diary in the East*, with wood cuts and coloured plates, 8vo., cloth, 17s., published at £1 1s., postage 11d. *Good Words for the Young*, the yearly volume, complete, 8vo., cloth gilt, 6s., published at 7s. 6d., postage 1s. The *Choicest Pieces* from Thomas Hood, Doré's *Exquisite Edition*, with nine engravings on steel, folio, 17s., published at 21s. *Boys' Own Book*

MINING AGENTS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

BRITISH MINES.

...the

LISBURN CONSOLS.—J. Paul, Dec. 13: The lode in the adit level, driving west of cross-cut, on the Gloghach lode, is all the width of the end (5 ft.), composed of clay-slate, gossan, carbonate of lime, and a little of lead. The last copper ore, which has been done east of cross-cut since our last setting, in the Hendrethel adit level, driving west of cross-cut, the ground has become more favourable for progress. During the last fortnight we have had a large bar of trapezoid rock crossing the end, which has rather disordered the lode, which is now 2 ft. wide, containing spar and soft clay-slate, with a little water issuing from the present end.

LLWYNTEIFI.—M. Barbary, Dec. 16: The men are making good progress in driving the 50 east of eastern shaft, having completed 7 fathoms out on the copper ore. The lode is still large, spotted with lead, blende, and copper ore, and has a very promising appearance. The lode in the winze sinking below the 10 is quite as good as when last reported, yielding from 1 to 1½ ton of lead ore per fathom.

MAES-Y-SAFN.—Dec. 13: In the 370, east of Grosvenor's shaft, the lode is increasing in size, and looking very kindly, but we have not yet reached the lead; we have good reason to think that the bunch of ore is still before us. The 350 west is still in hard ground, but the lode is increasing in size, and letting out a little more water, which leads us to think that we shall soon get through this piece of hard ground.

MAULIN.—J. Tregay, Dec. 11: The lode in the deep adit level east will produce 2 tons of good copper ore per fathom, and is looking very kindly for a further improvement.

MINERA UNION.—W. J. Harris, Dec. 16: Lowe's Shaft: The ground in the 60 yard level north consists of white limestone and carbonate of lime, which yields occasional stones of lead, and very promising. Brabner's Shaft: The lode in the winze in bottom of the 80 yard level is 4 ft. wide, worth 2 tons of lead ore per fathom for the length of the winze, which is 15 ft. long, and likely to continue. Boundary Shaft: The lode in the back of the 40 yard level south is as last reported, worth 1 ton of lead ore per fathom. The 50 yard level north yields good stones of lead, in very considerable ground.

MOUNT PLEASANT.—W. Wasley, Dec. 16: Last Saturday being our setting-day, I set the level to drive west of the boundary shaft for this month, at 10s. per yard, and 20s. per ton for ore. The men to lay down tramroad, tram, fill, and land all the stuff, pay for drawing, &c.; the end is now about 120 yards from shaft, and I am glad to say is now producing some nice lumps of ore, but not enough to value at present; but the end is looking as if it will improve shortly. At Jenkins's shaft we cut into the old level driven from Whimseygoch shaft, which we are now clearing in order to get back to the Whimseygoch shaft, and the one above it will ventilate the whole of the workings.

NANTGOS CONSOLS.—M. Barbary, Dec. 16: Penrhin: The lode in the 26 ft. level, west of Thomas's shaft, for the width of the level, is a good mixture of lead ore, yielding about 1½ ton per fathom. The lode in the 26, east of winze, is a good mixture of lead ore for the width of the level, yielding from 1 to 1½ ton per fathom. The distance between these two ends is about 5 fathoms, which expels all doubt as to the yield of the lode between these two points. No. 1 and No. 2 stopes, in the back of the 16, west of same shaft, are not looking quite as well as when last reported, each producing 1½ ton of lead ore per fathom. The lode to the west of No. 2 stope is a fair mixture of ore, as far as it has been opened on, but we have not yet cut through it. Blwch Gwyn: During the past week the shallow adit, east of old men's shaft, on Barbary's lode, has been driven through one of the prettiest lodes I ever saw at this depth, being composed of first quality gossan, blende, white and blue lead, yielding of the latter 1 ton per fathom. Specimens of the gossan and white and blue lead I have forwarded to your office to-day by rail.

NEW BIRCH TOR AND VITIFER CONSOLS.—Wm. Skewels, R. Trevarthen, Dec. 16: Hammer's Shaft: The lode in the 36, west of cross-cut, east of shaft, is 15 in. wide, composed chiefly of quartz and tin, worth of the latter 7 ft. per fathom, and in the stope in back of this level is worth 10 ft. per fathom. This lode is not yet intersected in the cross-cut driving south at the 24. New Shaft: The lode in the 60 west is 1 foot wide, worth 3 ft. 10s. per fathom. The pitches in this part of the mine are yielding about their usual quantity of tin.—Priddy's Shaft: The lode in the 22 east has not been taken down for the past fortnight, but about 3½ feet wide, producing saving work for tin. The lode in the 10 east is 2 feet wide, worth 4 ft. per fathom, and the stope in the back of this level is worth 7 ft. per fathom. The men are making good progress in the rise in the back of the adit for ventilation, and we hope to make the communication in the course of another month, after which the men will be employed to sink a winze in the bottom of the 10 to communicate with the 22. No other change to notice.

NEW CROW HILL.—A. Kent, T. Trelease, Dec. 14: The following was our setting on Saturday:—At the engine-shaft we measured for last month's sinking 2 fms. 2 ft., and was re-set to the same at 13 ft. 10s. per fathom, stented the month; this shaft is now down about 8½ fms. below the 8 ft. level; the ground at present is a little stiffer than it has been.—Wheat, Louisa: At the 75 east we measured for last month's driving 4 fms. 4 ft., and re-set to the same at 90s. per fathom, stented one month; the lode in the end is disordered a little at present by small flookan courses passing across it, but these we believe are only temporary, and as we are getting under the eastern hill into deeper ground we hope the lode will improve.

NORTH DOWNS.—F. Pryor, J. Williams, Dec. 14: In the 70 fathom level, east of sump-winze, we are getting clear from the splice allowed to in our former reports, and the lode is looking some good, producing stones of ore. The 70, west of sump-winze, is still wet for driving; the lode at this time is split up with a small horse of kyllas, but still worth 10 ft. per fathom. Since we have resumed the driving of the 60, west of King's shaft, it has improved, and now worth 7 ft. per fathom. We have recently taken down the lode in the midway level, and find it very promising, worth 10 ft. per fathom. The 60 fathom level, west of cross-cut, on the south lode, is producing good stones of ore, but not to value. We have put a pair of men to sink a winze on the north lode; it is a good channel of ground, and the lode producing a little ore. The stope in the bottom of the 60, west of sump-winze, is worth 7 ft. per fathom. The stope in the bottom of the 60, east of sump-winze, is worth 17 ft. per fathom.

NORTH POOL.—J. Vivian and Sons, F. Clymo, Dec. 15: In the 40, east of Ballarat shaft, the lode is improving in character, and the rock easy for driving through. In the 24 east the lode is 2 feet wide, composed of quartz, blende, and copper ore. The rise over the last-named level is producing 2½ tons of copper ore per fathom. In eight or nine days this rise will be communicated with the 16, when we shall be enabled to produce much faster than we can at present. The 30 fathom level, east of sump-winze, on middle lode, will produce 1 ton of copper ore per fathom. The parcel of copper sold on the 2d instant realised 90 ft. 12s. 6d. We have about 8 tons of ore broken for the next parcel.

NORTH RETALLACK.—G. R. Odgers, J. Harris, Dec. 15: The lode in the 20, north from the No. 1 boundary shaft, is 2½ ft. wide, composed of flookan and quartz, with occasional stones of lead ore.

OLD GUNNSLAK.—F. Phillips, Dec. 15: Parker's Shaft: The ground continues favourable for progress; 2 fms. 2 ft. in. were sunk last month, and it was re-set on Saturday last at 18 ft. per fathom. No change in the lode since my last. In the cross-cut south the ground is pretty favourable; 3 fms. 5 ft. were driven last month—present price 4 ft. per fathom. I hope to see the south lode soon. West on Parker's lode we are not through it yet, but I am expecting to be very day, when I shall be able to say its size and character.

PEDN-AN-DREA UNITED.—W. Tregay, J. Thomas, Dec. 11: Sump: The lode in the 140 west end is worth 60 ft. per fathom for 6 feet wide, and north of the south wall. The lode in the 120 north is looking very favourable for driving, and much water issuing from the end. In the rise in the 100 east there is good progress being made in rising; lode small, producing occasional stones of tin.—Cobler's: On Martin's lode, in the rise in the 120 west we are rising by the side of the lode, which is very hard, and letting out much water, the ground by the side of the lode being favourable for rising. The north lode, in the 90 west, is worth 15 ft. per fathom, and very wet. In the 90 rise the lode is worth 20 ft. per fathom, and the ground favourable for rising. In the 55 good progress is being made in sinking the shaft below the foot of the lode. In the 55 east the lode is worth 15 ft. per fathom. In the 55 west the lode is worth 25 ft. per fathom. At the 47 east the lode is worth 15 ft. per fathom. In the 47 west the lode is worth 10 ft. per fathom.—Diagonal Shaft: We are fixing timber for the new skip-road. No other changes to report.

PENHALLS.—S. Bennetts, W. Higgins, Dec. 10: The 80 cross-cut north is without any lode. In the 70 east the lode continues small, although good work. The lode in the 60 west is large and thin, but not very valuable. In the 40 west there has been none of the north lode broken since last reported on. The lode in the new lode is worth 7 ft. per fathom, and the stope in the back of this level is worth for tin and copper 15 ft. per fathom. At the Pink Mine the 40 west is improving, and is now worth 10 ft. per fathom, and the 30 west 5 ft. per fathom. The West Pink shaft is cleared to the bottom, which is 14 fms. below the adit; the lode here appears to be desued 7 fms. long, and is only just cut into, in one or two very small places, and so far as can be seen is worth fully 10 ft. per fathom. The water is issuing strongly from the lode, which probably accounts for there being no more done at this point.

PENHALLS.—W. H. Martin, Dec. 15: The men are making fair progress in driving the 120 cross-cut north from engine-shaft, to intersect the main lode. In the 74 ft. level bob plat the men are engaged cutting hitches and putting in timber for the balance-bob, and I hope we shall be able to put it to work by the end of the month. There is not much alteration to remark on in the 85 north from Ritchie's shaft, owing to the ground being so spare for progress.

PRINCE OF WALES.—J. Gifford, W. Gifford: In the 77, both east and west, we are driving by the side of the lode; ground favourable for driving, and congenial for copper ore. In the 65 east the lode is worth 8 ft. per fathom, by the side of the lode. The stope in back of the 65 east is worth 8 ft. per fathom. Two stopes in back of the 65 east are worth on an average 10 ft. per fathom each. In the 55 east the winze is sinking by the side of the lode. The stope in back of 55 east is worth 8 ft. per fathom. In the 55 cross-cut north there is no change. In the 55 west the lode is 2 ft. wide, yielding a little water, although not enough to value, yet a very promising end. Two stopes in back of the 55 west are worth on an average 12 ft. per fathom each. In the pitch in back of the 45 east the men are getting good wages.

PRINCES OF WALES (Calstock).—T. Foote, G. Rickard, Dec. 15: The ground in Harris's engine shaft sinking below the 35, is without any change to notice since last reported on. We are pushing on the sinking as fast as possible, and fair progress is being made.

REDMOOR.—F. Bennetts, Dec. 16: The lode in the 25 west has been disordered by a small cross-course; at present the lode is worth 16 ft. per fathom. The stope in back of the 25 west is worth 12 ft. per fathom. The weather has been very much against the dressing and preparing the floors.

ROABING WATER.—H. Thomas, Dec. 14: We drove during the past four weeks on Grady's lode 2 fms. 1 ft. 9 in. in the 45, west of Gillman's shaft. The end for the ensuing month is set to six men, at 8 ft. per fathom. In the north part of the lode a fine elvan is beginning to appear, containing yellow copper ore, and, from the highly mineralised character of the ground generally, I have no doubt we shall soon have a good improvement.

ROYALTON.—R. Reynolds, Dec. 16: The new incline shaft is holed to the 15, and properly secured with timber. The shaftmen will begin to lay down the timber to carry the rails to-morrow. We have about 100 tons of fair quality ironstone to bring down to this level as soon as the railroad is finished. The water is drained 5 fms. below the 15. Our machinery is now in good condition, and working well.

SOUTH CONDURROW.—J. Vivian and Son, Dec. 15: There is no change in any part of the mine since last week's report. We shall set a parcel of tin for the market, which will be finished in next report.

SOUTH HERDSFOOT.—W. Goldsworthy, Dec. 16: We are pushing on the cross-cut in the 100 as fast as possible; the ground is without change to notice this week. The engine and pitwork are in good order, but the water has very much increased by the late heavy rains.

SOUTH MERLLYN.—H. R. Harvey, Dec. 11: I can report an improvement in the 40 end, north from Vickers's shaft; the ground has become more settled, and it is looking more promising than at any time since it has been driving. The lode in the back, where we commenced stopping, is also improving, worth from ½ to 1 ton of lead ore per fathom.

TAMAR VALLEY.—J. Goldsworthy, Dec. 16: In the 57, driving east, the ground is easier, and good progress is being made. I have set the 27 ft. level south to drive on tribute, at 12 ft. per ton for silver-lead ore—a promising lode. The tribute department has improved.

TERREW.—Dec. 14: We have not yet let down the water from the 20 ft. level. Last setting-day we cut a large floor, which let down a large stream of water, which lessened it in the 20 ft. level near one-half, but since then we can see no difference. We set the end to drive on in kyllas under the lode, and fully expected to have met with a soft, speedy lode before this. The lode in the 20 ft. level south is improving in appearance, and getting easier for driving. There are only four men in this end.

TREWEATHA.—T. Foote, Dec. 15: We are making good progress in sinking the north engine-shaft under the 62 for bearers and elstern, and greater progress will be made as soon as we can fix the lift in the elstern, and take up the water that is coming from the levels north and south; the shaft now being clear from the lode we shall not have much water in the bottom of the shaft until the lode is cut into at another level. The lode in the 62 south is looking well, full 3 ft. wide, and will yield full 15 cwt. of lead per fathom—a fine-looking lode. The lode in the north end is not looking quite so well as it has been, I think it is owing to a little kyllas coming into the lode; this, no doubt, will soon leave again; the lode is 2 ft. wide, worth 7 cwt. of lead per fathom. We expect the castings daily, so as to fit the plunger at the 73, so as to enable us to fork down the water below the 73, which we believe will assist us at the north mine in sinking, the same being considerably under the 73, and as we think if the water is not kept down at the south mine will have to fall to the north shaft. Everything in good order, and working well. We purpose to sample on Friday about 30 tons of lead.

VAN CONSOLS.—T. Corfield, Dec. 15: In the 30, driving east, the end is letting out a little water; the lode still contains a good deal of carbonate of lime, and looks very kindly for an early discovery of ore. I have no change to notice in any of our other operations.

VAN UNITED.—S. M. Ridge, Dec. 4: On Monday last I set the following bargains in this mine:—Hollingsworth's deep adit level to drive west, by four men, at 6 ft. 15s. per fathom, including the tramming of the stuff. I am glad to inform you that this day we have cut into a part of the lode in the driving of the end which is looking very kindly, and letting out water. I also set a cross-cut to drive through the lode north of the deep adit level, 3 fms. to the west of the shaft, to four men, at 5 ft. 10s. per fathom, including tramming of stuff. In this place we have cut into the lode about 3 ft., which I am glad to say is looking well, and I expect shortly to be able to report very favourably on this mine, as the indications we have at the present time are sufficient to warrant a really good and productive mine.

WEST BASSET.—G. Lightly, Dec. 15: In the 164 east the lode is 3 feet wide, containing stones of ore, and saving work for tin. In the 164 west the lode is 3 feet wide, containing stones of ore. In the winze in the bottom of the 154 east the lode is 2 feet wide, yielding 1½ ton of ore per fathom. In the 144 west the lode is 2 feet wide, containing stones of ore. No alteration of importance has occurred at any of the points of operation on the various tin lodes since my last report. An increase of water has again caused a suspension of operations on the Wheal Charnier lode.

WEST CADADON.—W. Johns, N. Richards, Dec. 14: The sinking of Marina's shaft is going on as the nature of the ground will admit. We are pushing on the cross-cut both north and south of shaft at the 42 with all speed. We shall have about 6 ft. more to drive in the north cross-cut to reach Allen's lode. In the 42, west of winze on Allen's lode, the lode is worth 3 tons per fathom, and is within 6 ft. of the cross-course. Here we shall soon communicate with the cross-cut from shaft. In the 42, east of winze, the end is presenting a very good appearance, worth 2 tons per fathom, and in order to ventilate this level we have commenced to sink a winze in the bottom of the 30, where the lode is worth 2 tons per fathom. Two pitches in the back of the 30, which will average 2 tons per fathom. In the 27, west of Cock's shaft on Allen's lode, the branch we discovered in the south side seems to be the main part of the lode, and is producing saving work. You will perceive the mine continues to open up pretty well.

WEST GODOLPHIN.—J. Pope, Jun., Dec. 10: Hope Lode: In the 45, driving west of Paul's shaft, the lode is 18 in. wide, and saving work for tin.—Caunter Lode: In the deep adit level, driving south-east of Pressure shaft, the lode is 15 in. wide, worth about 3 ft. 10s. per fathom—a kindly lode. Our engine is forking the water slowly below the adit level.

WEST MARIA AND FORTESCUE CONSOLS.—Wm. Skewels, J. Donnal, Dec. 14: West Maria Lode: There is no change to notice in Williams's shaft since last reported on. The lode in the 60 ft. level, east of this shaft, the lode is improved, and is a fine course of ore, worth 40 ft. per fathom. The lode in the winze, sinking in the bottom of this level, is still looking well, worth in 60 ft. per fathom. The stopes in the back of this level, east and west of this shaft, continues to be worth 20 ft. per fathom. The driveage is by the side of the lode in the 60 west, and also in the 50 east, consequently no change to report in these places.

WEST PRINCE OF WALES.—J. Gifford, Dec. 16: The men are making as good progress in cutting the 1st plat in bottom of the shaft as can be expected; I hope to have it finished by the end of this month.

WEST TOLGUS.—Dec. 15: We have sent down three pieces of main-rod and plunger pole at Taylor's engine-shaft, and calculate on fixing the plunger in the 95 on Friday night and Saturday next, but the plunger to leave from the 95 to the 85, and leave off the the other two lifts from the 85 to the 65 at other times, so as not to stop the engine to do all the work at one time, as it would throw in too much water, therefore the sumpmen have not finished cutting trip-plate in the 105. The lode in the 105 east is 4½ ft. wide, producing 3 tons of ore per fathom, worth 15 ft. per fathom. In the 105 west the part of the lode that is being carried is 3½ ft. wide, producing 3½ tons of ore per fathom, worth 15 ft. per fathom; we have put the men to take down the north side, to see what lode we have standing in that direction. The lode in the 95 east is 20 in. wide, consisting of spar and flookan; we have not met with any more lode to the north. The lode in the 95 west is 18 in. wide, composed of flookan and spar. We have four stopes over the back of the 95, working by 24 men—one worth 28 ft., one 25 ft., one 20 ft., and one 22 ft. per fathom. In the 85 east the lode has not been taken down since last reported on. The lode in the 85 west is 4 ft. wide, with a very hard cap, worth 15 ft. per fathom. In the 85 west the part of the lode that is being carried is 3½ ft. wide, producing 3½ tons of ore per fathom, worth 15 ft. per fathom; we have put the men to take down the north side, to see what lode we have standing in that direction. The lode in the 95 east is 20 in. wide, consisting of spar and flookan; we have not met with any more lode to the north. The lode in the 95 west is 18 in. wide, composed of flookan and spar. We have four stopes over the back of the 95, working by 24 men—one worth 28 ft., one 25 ft., one 20 ft., and one 22 ft. per fathom. In the 85 east the lode has not been taken down since last reported on. 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With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Prof. Smyth's Lectures at the Royal School of Mines—Original Correspondence: Coal-Breaking Machinery; Government Interference; Coal and Iron Works in the South Staffordshire District; Dead Rents and Royalties in British Copper Mining (A. Bennett); Mineral Wealth of Ireland; Investment and Speculation (C. Thomas); Californian Hydraulic Diggings; Quartz Crushing Extraordinary; Gold Fields of Nova Scotia; Chontales, and its "Nugget Telegram;" Australian United Gold Mining Company—Foreign Mines Reports, &c.

Next Saturday being Christmas day, the Post Office arrangements will render it necessary that we should publish the Journal on Friday evening, to allow of it being dispatched by that night's trains. We must, therefore, request that our correspondents, especially mine agents, will forward their reports, and other matters of information, so that they may be received in good time.

We have several times referred, within the last few weeks, to the PACIFIC MINING COMPANY, recently launched under the auspices of Mr. GEORGE BATTERS, so well known for his great mining successes. We are now happy to be in a position to state that the whole of the capital—150,000—was, on Thursday last, paid into the Union Bank. There is this peculiarity in the Pacific Company, that the whole of the capital has been called up at once, and in one instalment, which has rendered the payment heavy in proportion to the amount. This has been rendered necessary from the fact that the mines, being already rich and dividend-paying, had to be paid for in cash down. In the case of speculative mines it is easy to arrange for the payment by instalments running over a considerable period; but mines such as those of the Pacific Company must necessarily be paid for in cash. Our readers must bear this distinction in mind in comparing this company with other foreign mines before the public. Every other foreign mine, without any exception, hitherto brought before the public has been merely speculative; but the mines of the Pacific Company already pay, on an average, profits equal to 20 per cent. on the nominal capital.

YUDANAMUTANA—THE FORGED TELEGRAM.—It was stated at the meeting on Tuesday that the directors had discovered there were three persons in Australia, who framed a plan of speculation, incalculated in sending the forged telegram, which caused the shares to advance in market value from 17. to 74. per share, equal to an aggregate increase of not less than 270,000. The actual sender is known, and a warrant has been issued for his apprehension. The directors are determined to prosecute for fraud.

WHITE PINE (Nevada).—The steamship Union, from New York, has brought 19 bars of silver, valued at 5791. from the Eberhardt Mine. This is the second shipment they have made within about three weeks, and we understand they are sending about \$80,000 per month.

THE MINES OF CORNWALL AND DEVON.—It is calculated that in the six months ended on March 25, copper, tin, lead, and other minerals were raised in Cornwall and Devon of the value of 637,028.7, and in the six months ended Sept. 29, 715,292.7. In the corresponding periods of 1868 the values were 553,652.7 and 581,200.7. The increase shown in the half-year ended September last is in the returns of tin and lead, the production of copper showing a serious decline.

GREAT WEST CHIVERTON MINING COMPANY.—This company has been registered under the Companies Acts of 1862 and 1867, which limit the liability of shareholders to the amount of their subscriptions, and share warrants to bearer will be issued, transferable in the same manner as a bank note; capital 30,000, in shares of 21. 10s. each. The vendors of this valuable property and the promoters of the company prove their perfect confidence in the success of the mine by accepting no cash, but share warrants only, for the transfer of the lease, plant, &c., and for preliminary expenses, leaving a net working capital of 10,000, which it is estimated by the most experienced mine agents to be fully double the amount required to insure handsome dividends. The mine has within the last few weeks been thoroughly inspected and reported upon by Capt. J. Nancarrow, of Great South Chiverton Mine, and Francis Gundry, who state that they know no mine where so much lead has been produced or discovered at so shallow a depth as at Great West Chiverton, and that the stratification is the same as that of the celebrated West Chiverton, the shares of which (10s. paid) readily sell at 55s., and give 8s. per share per annum dividend, besides paying for some of the most extensive and finest machinery in the county of Cornwall, and leaving from 9000. to 10,000. of reserve fund. Great West Chiverton Silver-Lead Mine, Mithian, near St. Agnes, is only about three miles, in a direct line, from West Chiverton, and no doubt is entertained that the lodes of these two mines are identically the same, with the remarkable difference that at West Chiverton less ore ground was seen at 20 or 30 fathoms from surface than Great West Chiverton produces. The mine was also inspected within the last three months by three of the gentlemen who now constitute the board, accompanied by Mr. Henry von Uster, F.G.S., a gentleman of great practical experience in mining. The board of directors comprises Messrs. Harry Brown (firm, Munt, Brown, and Co.), 85, Wood-street; James Toleman; 17, Goswell-road; Augustus von Metz; J. Broadbent and S. H. Armitage, 9, Dowgate-hill (the office of the company). J. Broadbent, jun., secretary *pro tem*. The directors' qualification is 100 shares, or 2500. each, which will at once be paid up.

MINING IN THE VAN DISTRICT—ABERDAUNANT.—The unequalled success of Van naturally directs attention to other properties in the neighbourhood working upon the same lode; but the only one that has up to this time returned ore in appreciable quantities from the Van lode is the Aberdaunant, and its working was commenced long before Van had been brought into its present extraordinary condition of productiveness, and with no small degree of success, as may be judged by the fact that, although wrought to an extremely limited extent, as compared with its producing capabilities, the present returns are about 40 tons per month. The operations in progress will enable the executive to materially increase the sales of ore, while at the same time the property is being laid open with the view of ensuring a continuance of successful results. The ore realises about the same price as that from Van.

PERRAN WHEEL VVYAN (Silver-Lead).—Since we last drew attention to this promising property active operations have been carried out on Nos. 1 and 3 lodes. A shaft on the course of No. 1 lode is being sunk with all dispatch, and from the favourable appearance it is fully expected lead in paying quantities will be met with at a shallow depth. No. 3 lode is producing lead in the adit level of good quality, and as the end is extended further into the hill the lode will, in all probability, become richer. Specimens of the ore have been sent to the office of the company.

COAL MARKET.—The fresh arrivals this week only number 62 ships, and the market has been entirely cleared each day, without prices undergoing the least change. Hetton Wallsend, 22s. 6d.; Tees Wallsend, 21s. 9d.; Hetton Lyons Wallsend, 20s. 3d.; Tunstall Wallsend, 20s. 3d. Ships at sea, 140.

The Bank of England return for the week ending on Wednesday evening showed in the ISSUES DEPARTMENT an increase in the "notes issued" of 479,895.7, which is represented by a corresponding increase in the coin and bullion on the other side of the account. In the BANKING DEPARTMENT there is shown an increase in the "public deposits" of 1,430,536.7, and in the "rest" of 11,025.7, together 1,441,561.7; a decrease in the "other deposits" of 360,655.7, and in the "seven day and other bills" of 23,630.7, together 384,285.7; and deducting therefrom 180,277.7, the increase in the "other securities" on the asset side of account, there remains an increase in the total reserve of 871,999.7.

DRESSING AND WASHING TIN ORES.—The improvements in apparatus for dressing or washing tin ores and other minerals, invented by Mr. FRANCIS BARTLE, of Bassett Foundry, Pool, have reference to an apparatus or receptacle for dressing or washing tin ores and other minerals known as a "kieve" or tub. This has heretofore been made of wood, and it has consequently not been possible readily to impart to its sides the vibrating motion requisite for the process. Mr. Bartle's invention consists in constructing such "kieves" of cast-iron or other metal, and in forming upon the sides thereof one or more pockets or brackets, in which are placed pieces of wood or other suitable material for receiving the blows of the hammer for producing the requisite vibrations. Ribs are carried from such pockets partially round the "kieve" in order to strengthen the same, and also to transmit the vibrations. It is preferred to form either a rim, or legs, or projections upon the lower edge of the "kieve" by which it rests upon the ground, so as to keep the bottom surface free to allow it to partake of the vibrations.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, DEC. 17, 1869.

COPPER.				IRON.			
Best selected, p. ton	£	s.	d.	Per ton.	£	s.	d.
Tough cake and tile	72	0	0	Bars Welsh, in London	7	0	0
Sheathing & sheets	77	0	0	Ditto, to arrive	7	5	0
Boils	73	0	0	Nail rods	7	5	0
Bottoms	80	0	0	Do., Stafford, in London	8	10	0
Old (Exchange)	64	0	0	Do., ditto	8	7	0
Burra Burra	73	19	0	Hoops ditto	9	0	0
Wire	0	10	0	Sheets, single	10	0	0
Tubes	0	11	0	Pig No. 1, in Wales	3	15	0
BRASS.				Refined metal, ditto	4	0	0
Per lb.	£	s.	d.	Bars, common ditto	5	0	0
Sheets	8 1/2	0	0	Do., Welsh, Tyne or Tees	6	0	0
Wire	"	8	0	Do., railway, in Wales	5	0	0
Tubes	"	10 1/2	0	Do., Swed., in London	10	0	0
YELLOW METAL SHEATH. P. LB.				To arrive	10	5	0
£	s.	d.	Per ton.	Pig No. 1, in Clyde <td>2</td> <td>17</td> <td>0</td>	2	17	0
Foreign on the spot	12	10	0	Do. f.o.b. Tyne or Tees	2	9	0
" to arrive	19	10	0	Do. Nos. 3, 4, f.o.b. do.	2	6	0
SPELTER.				Railway chair spikes	5	10	0
Per ton.	£	s.	d.	"	11	0	0
Foreign on the spot	12	10	0	INDIAN CHARCOAL PIGS,			
" to arrive	19	10	0	In London, p. ton.			
ZINC.				£	s.	d.	Per ton.
Per ton.	£	s.	d.	Swed., in kegs (rolled)	14	0	0
In sheets	24	0	0	(hammered)	14	0	0
TIN.				Ditto, in faggots	15	0	0
Per ton.	£	s.	d.	English, spring	19	0	0
English blocks	117	0	0	QUICKSILVER (p. bottle)			
Do., bars (in brls.)	118	0	0	£	s.	d.	Per ton.
Do., refined	118	0	0	English Pig, com.	18	15	0
Banca (nom.)	111	0	0	Ditto, L.B.	19	5	0
Straits (nom.)	111	0	0	Ditto, W.B.	20	5	0
TIN-PLATES.*				Ditto, sheet	19	10	0
Per box.	£	s.	d.	Ditto, red lead	20	0	0
IC Charcoal, 1st qua.	1	6	0	Ditto, white	27	0	0
IX Ditto, 1st quality	1	12	0	Ditto, patent shot	22	0	0
IX Ditto, 2d quality	1	4	0	Spanish	18	7	0
IX Ditto, 3d quality	1	0	0				
IX Coke	1	2	0				
IX Ditto	1	8	0				
Canada plates, p. ton	13	10	0				
Ditto, at works	12	10	0				

* At the works, 1s. to 1s. 6d. per box less.

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REMARKS.—The appearance of the Metal Market has not become any more encouraging during the past week, and no improvement has occurred in the amount of business transacted; and as we are now drawing towards the close of the year, it is not very likely that we shall see much alteration for the better take place during the short time that yet intervenes between this and the new year, as merchants generally are rather indisposed to give out more orders than are absolutely necessary before the turn of the new year. We trust, however, when that arrives we shall have some indications of the dawning of brighter days for the metal trade, which has now for so long a time been under a cloud, and that by the time the spring arrives we shall have entered upon a decidedly more active condition of the metal market. Prices have in some instances become weaker, consequent upon the unsettled state of the market for one metal, and upon the almost total absence of demand for others. But, unfortunately, although prices may go down, yet this does not at all induce business, buyers being exceedingly chary of entering into transactions while the metal market remains in its present unsatisfactory condition, as there appears to be no certainty that prices may not go down much lower even than they are at present. Until there is more confidence in the stability of the market it can hardly be expected that business will improve, or that operators will engage in any speculative movements. Fortunately the money market remains easy, with a prospect of even a lower rate of interest being declared ere long, and this will tend so far to aid an improvement in matters as soon as a commencement is made in that direction; and it now only remains patiently to wait the turn in commercial affairs, and to make the most of it when it arrives.

COPPER.—Advices have been received from Valparaiso, dated November 2, stating the charters in the last half of October to have been 3050 tons, with a stock on the coast of 2750 tons. This intelligence has tended to increase the flatness of the market, and prices are now quoted rather lower. Very little business is, however, doing. Chili bar is now quoted at 66s. to 66s. 10s. per ton cash, and ore at 13s. to 13s. 3d. per unit.

IRON.—In Staffordshire there is no business of importance doing in manufactured iron at the new list prices, but most of the makers have orders accepted before the advance sufficient to occupy them until the end of the year. In Welsh ample employment is afforded to all hands at the works, winter prospects being, on the whole, favourable, there being orders on the books that will keep the establishments going for the next two or three months. But few fresh transactions are being entered into, owing to the near approach of the end of the year. The exports last month reached 9040 tons, of which New York took 1202 tons; New Orleans, 2100 tons; and Genoa, 1497 tons. There are no large contracts on offer in the home market, but a good business is looked forward to early next year. Bars show increased firmness, but the quotations are still below those obtained for rails. In Swedish iron there is not much enquiry. In Scotch pig-iron the market has continued to move upward, and a very large amount of business has been done at various prices, the last received from Glasgow being 57s. 3d. cash, and 57s. 6d. one month.

LEAD.—A moderate business only is now doing, but prices remain steady at the quotations.

TIN.—The market for foreign remains in a very unsettled state, and business to a limited extent only has been done. Small parcels of Straits have been sold at 111s. cash, and Banca has changed hands at the same price. On Monday the smelters of English announced a reduction of 3s. per ton on blocks and bars, and 6s. per ton on refined, making present prices 117s. for blocks, 118s. for bars, and 118s. for refined.

SPELTER remains still in the same inanimate condition, with but little business doing. The quotation for parcels on the spot is still 19s. 10s. to 19s. 15s.

TIN-PLATES without activity, and prices rather easy.

STEEL without change. QUICKSILVER in fair demand.

THE IRON TRADE.—(Griffiths' Weekly Report).—We have had a steady business in general kinds of iron this week, and prices, inferior Staffordshire makes are improving a little, although the competition which Welsh bars present to this particular kind of iron continues unabated. The rail market throughout the kingdom are all running full time, and as Belgian and French houses have during the last 14 days entered into further large contracts for rails for next year, it appears to us that the prospects for the rail makers are very good for 1870; and as this trade consumes such immense quantities of iron the general trade ought to improve, and no doubt will sympathise with the upward tendency manifested by the present condition of the rail market. Russia and America have been our great customers this year. America's requirements for next year will be enormous, and as the 5-20 Bonds are now considered one of the best investments on the Stock Exchange, and the revenue returns considered favourable, this great Republic will have ample funds to pay for the rails; and no doubt next year we shall do a large business in rails with them. It is a singular fact, and a source of congratulation to this country, that comparatively all rails imported to America are made here; the Belgians, from some cause or other, cannot compete with us in this market, having done comparatively nothing with the great Republic this year. The market is good for North and South Staffordshire bars of known brands at the advanced price—7s. 6d. Broad-street, Dec. 17.

CHEMICALS, MINERALS, AND METALS.—J. Berger Spence and Co.'s Report:—Since our last circular, of the 9th, the transactions reported in the chemical trade may be considered a fair average of the alkali trade which was experienced in the early part of last week, but towards the close some considerable shipping orders were given out. For home consumption there has not been such a perceptible falling off in orders as is usual at this time of the year, consequently prices are very firm, with every prospect of an appreciable increase at the turn of the year. In minerals, no sales of importance; the deliveries have been chiefly on account of contracts. Since the advance in iron a proportionate increase in the value of the ores has not been realised, many of the ironmasters having been contented with the present low prices of the ores. In metals a large business has been done in Scotch pig-iron at advanced prices, and the market closes very firm. In Cleveland, also, prices are much higher, and still tending upwards. Copper is quiet, with no alteration in prices. An official reduction of 3s. per ton has been declared in English tin. Lead is in steady demand at present quotations. Spelter quiet, and rates remain in favour of buyers.—Soda: Soda ash for contracts is still being placed at the old rates of 7s. on 48 per cent., and of caustic at 13s. on 60 per cent. The demand for soda crystals has somewhat abated, prices remaining at 31. 17s. 6d. Salt cake not pressing, and firm at 67s. 6d. bi-carbonate dull at 39s. 6d. Nitrate of soda has fallen again, though it is still at 15s., considerably above its value.—Potash: Muriate very firm, and in inadequate supply, prices tending upwards from 7s. 7s. 6d. to 7s. 12s. Saltpetre: A somewhat more active market, prices ruling from 22s. to 22s. 6d. foreign, and 26s. 6d. English refined. Alum, though heavily contracted for, is sold at the old rates of 6s. 6d. for loose lump, and 7s. for export in barrels, and 7s. for ground.—Ammonia: Sulphate in tolerable request at 18s. 10s. for 20 per cent. to 17s. for fine white; muriate sells at 22s. to 22s. 6d.—Coppers: Green

and rusty, at 21. 10s., in ordinary demand; dry very active at 50s.—Pyrites: The market is now somewhat more regularly supplied, prices ruling as before.—Lime: In phosphate there is less doing at 52s. 6d. for 65 per cent.; bleaching powder firm at 8s. for 85 per cent., with considerable quantities still to place; disintegrants, at 5s. 6s. per ton for best kind, selling freely. Manganese in slow request, at 90s. for 70 per cent.—Iron Ores: Hematite sells at 13s. to 18s.; oolitic is finding new consumers, at 6s. to 8s., in Staffordshire.—Guano: Best Peruvian obtains still 13s. 7s. 6d. to 13s. 10s.; seconds in slower demand.—Iron: Scotch pigs are firm at 57s. 3d.; Cleveland strong at 49s. for forge, to 53s. 6d. for No. 1; Welsh bars, 6s. 5s. to 6s. 10s.; Staffordshire bars, 7s. 10s. to 8s. 10s.; gas tubes, 6s. to 6s. 7s. 6d. off list; boiler tubes, 4s. to 4s. 2s. 6d. per cent. Copper quiet; English tough, 7s. 10s. to 7s. 12s.; Chili slab, 6s. to 6s. 7s. Tin reduced; English ingots, 117s.; Straits, 111s. to 112s. Lead steady; P.G. best English soft pig lead, 19s. Spelter inactive; English, 30s. 10s.; Silesian, special brands, 19s. 10s. to 19s. 15s.; hard spelter, for export, 16s. 10s.—Lithomere—chambers, King-street, Manchester.

THE COPPER TRADE.—Messrs. Piteairn-Campbell and Co. (Liverpool).—The copper market has continued unsettled, with a declining tendency, and a more general inclination to sell. Chili bars are 5s. to 10s. lower, ore and regulus 3d. per unit, the Swansea standard on Tuesday having declined, with an average unitage of 12s. 7d. Quotations are 66s. to 66s. 10s. for Chili bars, 13s. to 13s. 3d. for ores and regulus, 7s. 10s. for Urmeneta ingots, and 14s. 9d. for Corocoro Barilla. Business transacted during the fortnight comprises on the spot here, 560 tons bars, at 66s. 15s. down to 66s. 5s., and 80 tons ingots at 72s. 10s. to 72s. 5s.; on the spot at Swansea, 1210 tons regulus at 12s. 3d. to 12s. 6d., and 70 tons ingots at 72s. to 71s. 10s. The particulars of the Swansea sale are 1982 tons ore, average produce 14s. 7d. per unit, average price 12s. 7d. Arrivals here during the fortnight from West Coast, S.A.—Rimac, from Valparaiso, 120 tons bars. At Swansea, Delaware, from Carrizal, 560 tons regulus; Alfine, from ditto, 500 tons regulus; Coplapo, from Totoralillo, 510 tons regulus. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, are—

Ores. Regulus. Bars. Ingots. Barilla.

Liverpool 1127 3690 9220 1114 120

Swansea 3318 6736 624 488 242

Total 4946 9386 10,844 1602 362

Representing about 17,900 tons fine copper, against 12,700 tons Dec. 15, 1868; 8900 tons Dec. 15, 1867; 8550 tons Dec. 15, 1866. The stock at Havre is 6225 tons.

Messrs. James and Shakspeare.—About 2600 tons of regulus sold by private contract at 13s. per unit. No transactions have taken place in ore, except at the Swansea Ticketing, on Tuesday, when about 2000 tons, averaging 14s. 7d. per unit, went at an average of 12s. 7d. per unit. Smelter parcels of bars changed hands during the last seven days at 66s. 15s. to 66s. 12s. 6d., according to brand; the quantity disposed of was tolerably large, but the sales were chiefly made by parties wishing to close their accounts before the end of the year. On the 13th inst. the Chili mail was delivered, the charters advised by it for the last fortnight in October amounting in all to 3050 tons pure of which 1018 in bars and ingots (fully 1500 of these being of the Lota brand), 1438 tons in regulus and ore. The market was only slightly affected by this news, and merely induced some holders to give way about 5s. per ton. Nothing of any importance has transpired in either Australian or English, but the former is quoted at a reduction of 10s. per ton.

Messrs. Vivian, Younger, and Bond.—Prices have given way a little, and we can report a very fair business at the slight reduction which has taken place. About 400 tons of bars have changed hands at 66s. 5s. cash, and 1900 tons of regulus at 13s. In fine foreign and English raw copper not much has been done, and annexed prices are not easily supported. But we think that there is a more healthy tone in the market, and as many of the smaller operators and some of the large ones have been clearing out their stocks it is not easy to execute special orders, and the time seems to be approaching when the market will be large importers will again have the trade in their hands. The mail from Chili, received on Monday, advised charters for the fortnight ended Nov. 2 of 3050 tons fine copper—1600 tons in bars and ingots, and 1450 tons fine in ores and regulus.

The settlement of the fortnightly account took place in the MINING SHARE MARKET this week, and occupied the chief attention of the dealers for a few days, so that, on the whole, not much general business has been transacted since our last, though a few mines have been moderately active. The tin standard declined 3s. on Monday. The mines chiefly dealt in have been East Lovell, West Chiverton, Chontales, Don Pedro, Pacific, Australian United, West Basset, Wheel Mary Ann, South Caradon, Hingston Down, Prince of Wales, North Crofty, Wheel Grenville, East Grenville, Wheel Seton, and a few others.

East Lovell shares have, as usual, fluctuated almost every day, and after receding to 22½ they leave off 24½, 25½.

West Basset, 25s. to 30s., and in demand. The heavy call made on this company on the 24th ult. for balance of law expenses, and for two months' working costs (25000.) in advance caused great dissatisfaction among the shareholders generally, and this week it has been rather increased by an official circular informing them that the award in the dispute between the company and South Frances had been given in favour of the latter. We have, therefore, made some enquiries into the matter, and as far as we can gather the state of the case is this. In one of the suits between the two mines, South Frances paid 5257. into Court as sufficient damages for ores taken away from West Basset. The latter claimed a much larger amount, and after a deal of litigation it was left to Mr. Kingdon, Q.C., to arbitrate and decide whether such a sum was sufficient or not. His award, just given, is in favour of South Frances—that is to say, he decides that the sum paid by that mine covers the value of all ores taken away, and, consequently, the law costs will fall on West Basset. These we are told can be paid, although they are heavy, without making any further calls upon the shareholders. Some months ago the mine was inspected by well-known agents, who reported that it could be worked to a profit of 5000. per month; and, in addition to this, we understand the prospects at Wheel Charmer, or western part of the sett, near to West Frances and Wheel Grenville, which is in untried ground, and held from Lady Grenville, are of the most encouraging character; and it is hoped, now that the last suit is over and law at an end, that the mine will take a better position in the market.

Australian United shares have been in good request, at 3½ to 3½. Bedford Consols, 2½ to 2½; Bronfloyd, 3½ to 3½; Caldbeck Fells, 1½ to 1½; Chiverton Moor, 3½ to 4; Ding Dong, 22 to 23, ex div. of 20s. per share; Drake Walls, 4 to 4; Dolcoath, 12½ to 12½; East Seton, 1½ to 2; East Wheel Grenville, 2½ to 2½; Frontino and Bolivia, 20s. to 22s. New Wheel Lovell, 1½ to 1½; at the meeting, held on Dec. 9, the accounts showed a loss on four months' working of 8857. 10s. 10d.; a call of 5s. per share was made. The tin sold realised 1157. 10s. 8d. Although the ends at present are not so good as they have been, the agents consider the prospects of ultimate success greater than they have ever seen them before. A new boiler, changing pitwork, &c., made the costs heavier than usual during the last four months. Chontales leave off 1½ to 1½; the mail arrived on Monday, with advices to date of Nov. 5, and Mr. Belt closed his letter on the 6th by stating that news had arrived of the termination of the war. The telegram we referred to last week was dated Nov. 25, and cannot, therefore, be confirmed or disproved till the middle of January, unless Mr. Lacayo at the same time he forwarded the telegram, supposing that he did forward it, also wrote a letter to send by the same mail, in which case news may arrive by the end of this month. San Antonio had improved in its produce for gold to 12 dwts. Mr. Belt had succeeded in getting some native miners, and paying them in gold. He has also sent home 250 ozs. of gold.

Great Laxey, 19 to 19½; Great Wheel Vor, 15 to 15½; Hingston Down, 24s. to 26s.; Marke Valley, 6½ to 7½; Mineral Bottom, 2 to 2½; Penhalls, 5½ to 6½; North Treskerby, 13s. to 14s.; Prince of Wales, 21s. to 22s.; Rosewall Hill, 11s. to 13s. Don Pedro, 3½ to 4; the advices by mail show a profit on the month of 26367. 7s. The gold raised was 12,039 oits., which realised 51167. 11s. 6d. The produce weighed to date, Nov. 17, for first part of next remittance, is 2237 oits. This is owing to one of the fluctuations so common in jacotinga mines, and the lode has been yielding very poor work for the remainder of the month. Mr. Symons expects to have a better supply of good ore. South Conduffur, 35s. to 37s. 6d.; South Darren, 35s. to 40s.; South Herodsfoot, 17s. to 22s.

Wheel Seton, 31 to 33; at the meeting, held on Monday, the accounts showed a loss on two months of 3921. 18s. 3d., and a balance carried to next account of 5017. 4s. 6d. In these accounts 2407. is charged for putting in skip-rope in Tilly's shaft. The prospects of the mine have improved, and there are three very important points to come off very shortly, either of which, the agents consider, may be of immense value—the cutting of Harvey's lode in the 80 fathom level, and sinking Simmons's shaft below the 64, on the north lode, both these being in whole ground for the length of the sett. At Tilly's shaft there is the cutting of the south caunter in the 160, and in two months to sink Tilly's shaft below the 200 fm. level, in the most kindly lode for making a course of tin ever seen in the mine. Stray Park, 8 to 9; Taquaril Gold, 11s. 6d. to 12s. 6d.; Trumpet Consols, 21 to 22; Van, 41 to 43; West Caradon, 7 to 11; West Chiverton, 54 to 55; West Frances, 35 to 37; West Maria and Fortescue, 31s. to 33s.; West Seton, 170 to 180; Wheel Basset, 25 to 30; Wheel Chiverton, 2½ to 3; Wheel Grenville, 40s. to 45s.; Wheel Mary Ann, 12½ to 13½; Wheel Seton, 31 to 33; Wheel Trelawny, 2 to 3; Tre-

Copper ore for sale at Tabb's Hotel, Redruth, on Thursday week—Mines and parcels.—Clifford Amalgamated 750—South Caradon 441—Great North Downs 300—Phoenix 235—West Damsel 90—Craddock Moor 56.—Total, 9063 tons.

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Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt: it then forms an accumulating useful work of reference.

WEST MARIA AND FORTESCUE CONSOLS.—I observed in last week's Journal that some one is desirous of obtaining from the agents the distance between the most easterly point of operation carried on in this mine and the western boundary of the Devon Great Consols. If the writer will kindly send me his name and address, I will give him such information as he may be entitled to.
—WM. SKELVIS: Tavistock, Dec. 16.

GEOLOGICAL MAP OF GREAT BRITAIN—"A. B." (Leeds).—One of the best maps of Great Britain, showing the superficial geology, is that published by Mr. James Wyld, of Charing-cross. The size is 4 ft. 4 in. by 3 ft. 3 in. wide; it is in two sheets, and the price is 17. 10s. in sheets, 2s. in case, and 2s. 2s. on rollers varnished. The same publisher also issues a smaller map (one sheet) geologically coloured at 5s. in sheet, 7s. 6d. in case, and 10s. on rollers. The larger map shows the topographical and physical features, lines of railway and stations, land and water communication of the counties, and the steam packet routes, with distance from port to port. Mr. Wyld has also just published excellent maps of the Suez maritime canal and of the isthmus of Suez and Lower Egypt, which at the present time will be particularly interesting.

VIRTUOUS LADY.—We cannot publish the letter from "Argus" without the writer's name being appended. Mr. Barnard always signs his.
Received.—"J. A. C." (Arbroath).—"B. M." (Vigan).—"Mentor" (Wakefield).—"W. A." (Merthyr).—"Miner" (Truro).—"H. D." (Dublin).—"J. W. F."

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, DECEMBER 18, 1869.

COAL-CUTTING MACHINERY.

During the last ten or twelve years the question of getting coal by machinery has occupied the attention of coalowners in nearly all parts of the kingdom; and although many machines have been brought out and patented, very few of them have succeeded in satisfying the requirements of those they were intended to benefit, and, consequently, at the present time there are, probably, not more than half a dozen of them in general use in the country. It may be said that the main objects to be attained by the application of machinery in getting coal are the raising of it at a cheaper rate than by hand; the securing of a larger quantity of coal without so much slack as by manual labour, and in larger pieces; and the minimising of the danger attending the ordinary mode of working. There is also the advantage, where compressed air is used as the motive power, of better ventilation, and a cooler atmosphere for the men to work in, owing to the discharge of the air whilst the machine is at work.

Of the various machines introduced from time to time the "pick" one has been brought out in various forms, but in several important points without much difference. The most successful of them is undoubtedly that of Messrs. W. and S. Firth, of Leeds, which has been constantly at work for the last three or four years in the West Yorkshire Coal and Iron Company's colliery, at Tingley. It is worked by compressed air, and the time occupied by it in under cutting a length of 56 ft. is about twenty minutes, the depth being 24 in. By a second application of a larger pick the cut is extended to nearly 4 ft. There is also the hydraulic machine of Messrs. Carrott and Marshall, of Leeds, which has been in use for some time, and which cuts 4 ft. into the coal at the rate of 15 yards an hour. Amongst the most persevering of inventors of machines is Mr. Donisthorpe, of Leeds, who was early, we believe, associated with Mr. Firth in bringing out the pick machine. He has a patent for a machine which has been worked successfully in the West Riding of Yorkshire. It is what may be termed a horizontal traversing slotting machine, the work remaining stationary whilst the machine traverses along the working face of the coal, and cuts out a horizontal slit or groove along the bottom of the seam. The number of strokes made with the tool is from 75 to 80 per minute, the pressure of air at the machine being from 65 to 70 lbs. per square inch at the time. The saving alone in the non-production of slack by the machine is considerable, not making more than about 4 per cent. against from 12 to 15 per cent. by hand. At the Tingley Colliery it has been proved that as much coal was got by the machine in three days as would require eight days at the least by hand labour, whilst the great danger the collier runs in holding by the coal falling on him, when his body is partly inserted in the groove he is cutting, is altogether removed by the machine. Of the more recent inventions of Mr. Jones, Mr. Bidder, and Mr. Chubb for breaking down coal notices have already appeared.

The last invention introduced for the getting of coal is that patented by Mr. F. Hurd, of Rochdale, and which we briefly noticed a fortnight ago. The specification was filed in the Great Seal Patent Office on September 24 last, and as we shall have to speak of the work it has done, a more extended notice of it will be necessary. Mr. Hurd says the patent consists in cutting horizontal, longitudinal, radial, and diagonal grooves in the coal or other mineral to be excavated, by means of a series of link stocks, containing the cutters, which are joined together in such a manner that no rivets or connecting pins are required; this series of cutters passes around a pulley mounted in a radial arm, and around a toothed wheel fixed to a shaft, which fits in a telescope, to increase or reduce its length; the radial arm is provided with grooves, which support the back of the cutter-stocks, and prevent them from being drawn out of the groove in the radial arm. The toothed wheel is driven to give motion to the cutter by the improved motive-power engine, or in any other convenient manner. The position of the radial arm is changed, so as to give the required cut by a worm fixed to the outer shell of the telescope-shaft, and a cam fixed to the driving-wheel; this cam, by a lever-catch, turns the worm at intervals, and thus advances the cutters to the extent required. The engine consists of an oscillating cylinder, to which the compressed air or other elastic fluid is admitted, and from which it is exhausted through two or more ports, the oscillation of the cylinder causing the ports to be opened and closed at the proper times without the aid of eccentrics or valves, for giving the requisite to-and-fro motion to the piston and piston-rod, which latter is connected to the crank-pin in the fly-wheel. The engine can be reversed by two double taps, placed in the passages leading to and from the ports, which taps are connected and worked simultaneously by levers or gearing. The cutting apparatus, and the engine by which it is driven,

are connected to a bracket, which fits on a screwed pillar, and it is raised or lowered by gearing connected to the engine, and which gearing reverses the direction of motion up or down, by changing the position of the wheels. The bracket also supports two shafts, with two eccentrics for acting on surface clips, one to secure the bracket in the position required, and the other to secure the radial arm.

When compressed air is used for producing the motive power, Mr. Hurd charges a receiver or a set of pipes with the air compressed by a stationary engine, or by the fall of the water in the pit, and this receiver or set of pipes is conveyed to the engine for giving motion to the excavating machinery, thereby saving the pipes required for connecting the air-pumping with the excavating machinery, as is now customary. The apparatus for compressing the air consists of a series of pump barrels, the pistons of which are worked by a diagonal disc, or other equivalent; this disc, or its equivalent, is driven by steam or other power, and the pump barrels are all united to the air-receiver. As the pressure increases in the receiver the piston-rods are disconnected in succession from the driving disc, or its equivalent, until the final compression is obtained by the last pump barrel. The pumping apparatus is placed in a water-course, to keep the barrels cool. The mode of operation is as follows:—When the machine is started all the slides are at the top of the slots, in the brackets, so as to impart the greatest power to the pistons in the pump barrels, but as the pressure increases in the receiver the slides are lowered to reduce the length of traverse, either by hand or by the governor, and they are brought in succession to the lowest point, where, as before stated, the pistons cease to be actuated by the cranks, consequently the final compression may be obtained by the smallest force-pump. By this arrangement very high pressure can be obtained, with comparatively little power. The air-pumping machinery may be worked by the fall of the water in the pit, and a diagonal disc or eccentrics may be used instead of cranks. The apparatus for compressing air may be employed to charge a stationary receiver, or a portable set of pipes forming a receiver. These portable pipes or receiver may contain sufficient compressed air to work the excavator from one to two hours, and they may be placed in the working so as not to interfere with the traffic of the mine, thereby saving the connecting pipes, as before stated. Mr. Hurd claims as original, amongst other things, the securing of the excavating machinery to a screwed pillar; the constructing of the cutter-arms, and the mode of varying the angle of them; and the construction of cutter-stocks, so as to form an endless cutter of any required length. Also, the improved register plate-valve, for admitting compressed air, steam, or other fluid to an oscillating cylinder; the improved arrangement of machinery for compressing air, and the mode of arresting the action of the force-pumps as the pressure increases; the supplying compressed air for working excavating and other machines by portable receivers; and the application of a jet of water for cooling and cleaning the cutters.

The invention having been highly spoken of, and its merits extensively canvassed, we are in a position to give the results of a trial made with it a few days ago, at the Wharfedale Silkstone Colliery, near Barnsley, to which place it was sent, there being the necessary atmosphere pipes and machinery used some five years ago in working a pick-machine, which was found not to answer. Mr. Hurd's machine, which weighs about 3 cwt., was taken into the Parkgate Pit last week, but it was not until Friday that it could be set in operation, and then, as is usual with all new machinery, there were some difficulties to be overcome. The point at which it was set to work was about 200 yards from the pit bottom, the seam of coal being about 5 ft. thick. The first trial took place at half-past 5 o'clock in the evening, in the presence of Mr. Platts, the viewers, and several other persons, and a bank 34 ft. in length and cut 3 ft. deep occupied nearly 15 minutes. It was then found that one of the wheels had given way, and which had to be replaced by a new one. In the second attempt a similar cut to the first one again took 15 minutes, and a third about the same time. A short delay then took place, and some suggestions were made and acted upon with the most satisfactory results, for in the next effort a bank 4 ft. in length was cut a depth of 3 ft. in six minutes and a half. In the next effort the machine cut a length of 34 ft. a depth of 3 ft. in five minutes and a half. It was now evident that the right mode of working had been ascertained, so that the results were still more gratifying, for in the sixth attempt a length of 34 ft. was cut 3 ft. in five minutes, and the last cut, to the same extent, occupied exactly the same time. Amongst the advantages seen in the working of the machine were the making of only a small quantity of slack, the groove made being less than 1½ in., whilst it can be worked by one man, being easily moved, as it is made to suit the gauge of the rails used in the colliery. The machine also clears away all the dirt as it proceeds, it can be placed at any height, and worked in a 2-ft. seam, not requiring more than 3 ft. of room between the face of the coal and the props, whilst the props can be set as the machine advances, so that there is no delay; and, as they can be set every 3 ft., there is no danger to be apprehended from any fall of coal.

That the machine is undoubtedly about the best that has for a long time been brought under the notice of colliery proprietors admits of no doubt whatever, and that it will in every way be successful appears evident. Mr. Platts, the viewer at Wharfedale Silkstone, who has had a very extensive experience, and has seen most of the machines which have been worked, states unreservedly that the machine of Mr. Hurd approaches nearer to what was required for general work in our collieries than any that has yet been brought under his notice. He considers it to be well adapted for working in almost any seam of coal, but more especially where it requires to be cut a few inches above the bottom. As the colliery proprietors in all parts of the kingdom have long been desirous of having a machine that can be easily worked, getting the coal quickly with but little slack, and at a rate less than by hand, at the same time diminishing the risk of accidents either from explosions of fire-damp or from falls of roof, the invention of Mr. Hurd will be found well worth their attention, as we believe that even much better results will be obtained than those we have given above. As it is, the fact that by the first testing of the machine it was shown that about 1½ ton of coal could be holed in five minutes or rather less, is in itself a result sufficiently gratifying as to lead to those interested in our coal mines giving that attention to the subject of coal-cutting machinery which it deserves. As some further trials are to be made with the machine we purpose being present, and shall on a future occasion give the results of the work done, with the opinions of those who are able to judge of the merits of the invention from a practical point of view.

ON DIFFERENT MODES OF WORKING COAL.

At the meeting of the Midland Institute of Mining Engineers, Mr. P. COOPER read a highly interesting and practical paper "On Different Modes of Working Coal," and the reasons of their being adopted under different conditions, with the circumstances requiring attention in discussing them. He commenced by stating that he agreed with a general observation that no one method of working was applicable to all beds of coal, nor to the same bed in different collieries, nor even in different parts of the same colliery, so that what was a suitable method in one place was the reverse in another. The conditions rendering different methods of working desirable or necessary were—the nature, strength, thickness, inclination, and depth of the beds of coal; the character of the roof or floor, quantity of water, the nature and amount of gases given off in working, and the habits and customs of the workmen, &c. Therefore, in discussing the different methods of working coal it should be stated that there were only three generic modes in use in the country. The long wall, by which the bulk of the coal was got by one complete process, the roof being supported by pack-walls, was, he believed, indigenous to the Midland Counties south of Yorkshire. Very tender and friable roofs were often greatly improved by that system of working, but, with the exception of unusually strong coal and other special conditions, it was generally the dearest method of working. More sudden issues of fire-damp from goaves, however, occurred when working long wall than have been recorded under any other method of working. But it was specially adapted to thin beds, which require much height for horse and tram ways, and for seams having thick dirt-beds, or bands, or where part of the roof came down with the coal, and the holing made in dirt beneath the coal, as it afforded ready and cheap stowage in the goaves for the material so produced. To work long wall with any chance of success in the South Yorkshire

thick coal required a much larger extraction of coal per day from each bank than could be got coincident with the habits and prejudices of the workmen. The bord and pillar working was well adapted to all beds of coal having good roofs, excepting those having thick dirt-beds, or bands. It was a much more intricate mode of working than either long wall or bank work, and required experience for attaining the maximum of success. Bank work, or alternate banks, was a mode by which, after driving out workings or levels in strait work, the whole of the coal was worked by banks. The latter were cut at both ends, then driven on the bord in the solid coal, leaving a pillar between them, which was subsequently worked backwards. That mode of working was well adapted to almost any bed, but required more pit room to ensure the necessary production, when the blocks are left of sufficient size, as they must be made larger in proportion to the increased depth from the surface, to prevent crush or "creep." The system has been adopted in the Barnsley bed for many years at a depth of over 1000 feet, and he believed was being worked at the Warren Vale Colliery, near Rotherham at the time when a serious explosion took place there in 1851, and had long been extensively practised in South Wales.

The combination of bord and pillar and bank work methods had long been in use in South Yorkshire, but it appeared that by it the proportion of coal worked by the banks in the first operation was far too great, except for mines of very moderate depth. The value of the coal produced was of considerable importance in connection with the mode of working, and depended on the quantity of slack made, for when the value of the slack was half that of the large coal a difference of 5 per cent. in the quantity made of the former was equal to not less than 2d. per ton on the entire produce at the existing prices. Therefore, when the rent charge was paid by the acre, as was usually the case in the Midland Counties, and not by the ton, as in the North of England, any part of the area rendered unworkable by the system adopted increased in the same proportion the rent charge per ton. It was, therefore, necessary, as all charges for machinery, roads, &c., would be the same whether the whole of the coal was extracted or not, that the method of working should be arranged so that the entire of the coal should be got.

In noticing the important question of safety from explosions, Mr. Cooper said there were certain well-known principles which were necessary to ensure an adequate amount of ventilation, which included the splitting of the air currents into the shortest possible lengths, with but few doors, and permanent open air-courses. For safe working it was also necessary that a principle which had not received the attention it deserved should be carried out—he alluded to what was known as "ascensional ventilation," and the gasdrainage of the goaves, and without which it was impossible to prevent fire-damp from accumulating in the goaves, and from the neglect of which most of the recent explosions might be traced. After noticing the important influence on working which the depth of the coal from the surface, the weight of the strata above it, the quality of the roof, and the emission of fire-damp had, Mr. Cooper concluded by recommending the classification of the various modes of working into groups, or in combinations, so that, comparing the results by practical experience, the best mode could be ascertained, and also the great importance of considering the percentage of slack made by any system of working.

A highly interesting discussion followed, one of the main points dwelt upon being the quantity of large coal obtained by any system, and the percentage of slack made at the same time. One of the members stated that he was aware of a place in the West Riding district where only about 10 per cent. of slack was made in holing the coal. This, of course, was considered in every way exceptional, no such results having been obtainable in any of the collieries in other districts.

A cordial vote of thanks was accorded to Mr. P. Cooper.

MINING IN NORTHAMPTONSHIRE.

There is now a good deal of activity discernable at the leading ironstone districts in the county of Northampton—a proof that the ore is now much better appreciated than formerly, since its actual value has been ascertained by testing in the furnace. Although the discovery of the vast fields of ironstone which are to be found in nearly all parts of the county was made less than 20 years ago, yet the progress made of late has been very great, and it is estimated that the total quantity raised during the present year will exceed 500,000 tons. A little more than a week ago it was stated that a bed of ironstone had been found not far from the Thrapstone Station of the London and North-Western Railway, yet the fact is that for miles on either side of the Midland, as well as on the former line, there are large and valuable deposits of ore which can be easily reached. Indeed, in sinking foundations in the neighbourhood of Tring and at Great Addington, and all round those districts, plenty of good stone rich in iron has been turned up. In the town of Northampton itself, in fact, there is plenty of ore, and a good deal is now being raised from a pit close to the asylum there, from which it is carted down to the railway station, a distance of something like two miles—a proof in itself of its value when the cost of carriage is calculated. At Blisworth and Gayton there is a very large tonnage being raised, also at Glendon, Finedon, Desborough, &c. At Peterborough there has been some very large boulders, containing a large percentage of iron, found on the estate of the Marquis of Huntley, but which, in the absence of a cheap supply of coal, have no great commercial value. It is, however, by no means certain that coal is not to be found in connection with the ironstone, and at a moderate depth. On the contrary, it is the opinion of many leading practical men who have given attention to the subject that the strong probability is in favour of coal being found in different parts of the county of Northampton. This, to a considerable extent, is borne out by the sinking at Kingsthorpe, distant a couple of miles from Northampton, and to which allusion has frequently been made during the last four or five months. There all the usual indications of coal were to be found in the various strata gone through in sinking, and the leading ironmasters in the district are yet pretty confident that coal will be found in the locality. The importance of such a discovery, even at a considerable depth, would be something extraordinary, and would raise the county of Northampton to a leading position as one of the first iron-producing districts in the kingdom, seeing that there are vast beds of ironstone in it as yet untouched and unthought of, but which would be opened out at the instance of the capitalist, who would find an excellent field for investment, and one such as could scarcely be excelled. That such would be the case is patent from the fact that, instead of sinking down, as in many districts, to an argillaceous stone not giving more than 33 per cent. of iron, here the stone is nearly at the surface, free from injurious ingredients (such as sulphur and phosphorus), giving upwards of 40 per cent. of iron, and well adapted for fluxing clay and other ores. Containing a good deal of siliceous ore is found of great advantage in conjunction with others in producing a good quality of iron. By itself, also, the iron from it is used for sheets, hoops, and rails, and is bought specially by many of the Welsh ironmasters for producing a good hard-faced rail.

Seeing that the stone is to be found in nearly all parts of the county, even at the present time it cannot be developed to the extent it might be; whilst in the event of coal being found in connection with it, and which would lead to the establishing of rolling-mills, foundries, and other works, the present carriage facilities would fall very far short of what would be required. At the present time Northampton is only a branch from the main system of the London and North-Western, and why it should have been left out, and such places as Weedon and Blisworth—the principal junction—included, is not apparent. It is true that Northampton may be said to be a semi-agricultural town, and although the actual staple is boots and shoes, yet the tonnage of them being sent away will be comparatively trifling in comparison with the quantity of iron and ironstone which would be sent out of the district. Therefore, in view of a great extension of the trade in those important articles increased facilities should be given by the railway companies, as by such means only can the vast mineral wealth of the county be developed. It may be said that not far from Rugby, on the high grounds, and in the neighbourhood of Welford, there are large deposits of ore, but to bring them to market there must be railway accommodation, and which could be easily furnished by the London and North-Western. Such would be required not only for the conveyance of the ironstone from the districts named, but also, as in the probable establishment of ironworks, for the importation of the necessary fuel. As a proof of the large traffic which springs from an ordinary iron-making establishment, the following returns, furnished to us from Mr. Butlin's, of Wellingborough, as showing what was done during last week only (an ordinary one) will abundantly demonstrate:—

Number of wagons of ironstone sent away	579
" " pig-iron sent away	80
" " slag sent away	16
" " coal received	113
" " ironstone received	27
" " coke received	3
" " sand received	44

Total of wagons

The above is independent of something like 1000 tons of ironstone used at the furnaces of the firm named, from which about 450 tons of iron are produced, the fuel used being 1000 tons of coal and 250 tons of coke. With increased traffic facilities in other districts there is not the slightest doubt but what new works would be opened out, and furnaces erected; and the amount of what new works would accrue to the railway companies in consequence will be gathered from the fact that one concern alone at the present time keeps on the average no less than 615 wagons per week constantly running to and fro.

As before stated, there is a good demand for the ore, whilst the ironworks are busy. The Messrs. Butlin are about to put another furnace in blast; and at the neighbouring works, belonging to the Glendon Company, at Finedon, there are now three furnaces going, whilst a good deal of stone is being sent into

Derbyshire and other districts. The works at Lower Heyford, near Weedon, so long carried on by Mr. G. Pell, and which during the last few years have undergone many changes, very recently having been in the possession of a limited liability company, have been taken by Mr. Plevin. Near to Market Harborough, where there are some extensive ironstone fields, it is not unlikely that iron works will ere long be established, seeing that on one estate a site for four furnaces has been laid out. The rolling-mills at Wellingborough, which were commenced some considerable time since, are not yet completed, and appear to have been stopped altogether. It is, however, expected that the necessary work for finishing them will shortly be commenced. The actual position of the different localities will be gathered from the following returns of the quantity of ironstone raised in Northamptonshire last year:—

	Tons.	cwt.
Bilsworth	46,513	10
Duston	41,519	0
Wellingborough	9,905	8
Heyford, &c.	91,328	0
Desborough	36,666	0
Glendon	50,821	0
Flinedon	11,935	0
Gayton	9,778	10
East End, Wellingborough	100,429	0
Bixworth	6,977	0
Woodford	35,858	0
Dean and Chapter Lands	17,926	0

Total

It will be seen from the above returns that at Wellingborough the largest quantity of ore is raised, and as that town is quite close to Flinedon and Glendon it gives every promise of becoming of no ordinary importance in connection with the iron trade. In the event also of coal being found in the district, and of which several of the leading ironmasters are very sanguine indeed, then, with increased railway facilities, may that town and Northampton take rank with Middlesbrough, giving profitable employment to thousands of persons, and so founding a new industry, it may be said, for the benefit of all classes in the county of Northampton. As it is, there is plenty of rich ironstone in nearly all parts of the county, and which, under all circumstances, it will be for future generations to develop to anything like the extent of which it is capable. The finding of coal, however—or the settling of the point—is one in which all classes, more especially those in Northampton, are personally interested, for it is well known that in all mining districts the colliery owners and proprietors of ironstone mines are those who contribute most largely to the rates. In Northampton, however, the finding of coal would create a trade, the wages in connection with which would amount to many thousands of pounds weekly.

MINING LAW—NEW STANNARY ACT, AND OLD MINES.

In the Journal of Nov. 20 last we gave publicity to an opinion communicated by the learned Vice-Warden of the Stannaries to certain legal gentlemen assembled in his Court at Truro, to the effect that the shareholders in an old mine, who proposed to forfeit certain shares under the Stannaries Act, 1869, sec. 16 and 17, could not in his opinion legally do so, inasmuch as the above-mentioned statute does not apply to a company established before such statute became law. The Vice-Warden stated shortly the grounds of his opinion, and with the general soundness of such opinion we entirely concur. Not so, however, the miners of Cornwall; they differ from the opinion of the learned Vice-Warden, and still believe that their new Act is a panacea for all the ills of the Cost-book System. In short, they insist that their Act applies to all companies, notwithstanding they may have been founded in the days of the Phoenicians. They insist that the Act applies to old as well as new companies, and that they can now forfeit the shares of any defaulting shareholder in any company, whether old or new, registered or unregistered.

Such a clash of opinion presented a difficulty of no little importance to pursers, not unaccompanied with some alarm that their Act had failed them in an important particular. Such being the state of things, the committee of gentlemen who promoted the Act resolved upon taking the opinion of the Attorney-General and Mr. KINGDON, Q.C., in consultation, as to the legal construction of the clauses in question. That opinion has been given, and we have been favoured with a copy, our readers will find it set forth verbatim in another column. It is with some surprise we find that the opinion of the above-mentioned learned counsel differs from that of the learned Vice-Warden, and that their opinion is that the Act "applies to cost-book companies existing at the time of the passing of the Act." Such being the conflict of opinion, we refrain from stating more than that the many arguments which suggest themselves to us all lead to a conclusion favourable to the Vice-Warden's view. At all events, our emphatic advice to pursers and mine committees is to pause, and not to put in force the forfeiture clauses as to any company constituted before the passing of the Act, and which has not forfeiture clauses amongst its rules, until this point has been further considered. The consequences of a mistake upon such a matter must be fraught with a variety of grave consequences, so grave as to be fatal to most mines, and would probably in most cases lay a sure foundation for litigation of the most expensive and protracted kind.

EXPORTS OF RAILWAY IRON.—The latest official returns as to the exports of railway iron from the United Kingdom still show very large deliveries to Russia, the total shipments to that country in October having been 50,607 tons, as compared with 30,627 tons in October, 1868, and 19,199 tons in October, 1867. In the ten months ending Oct. 31 this year Russia took our railway iron to the extent of 247,278 tons, as compared with 100,554 tons in the corresponding period of 1868, and 125,513 tons in the corresponding period of 1867. The increase which has been for some time observable in the shipments of railway iron to the United States appears to have now received a check; the total exports to the Great Republic to October 31 this year amounted, however, to 262,829 tons, as compared with 228,091 tons in the corresponding period of 1868, and 145,091 tons in the corresponding period of 1867. There has been a respectable increase in the exports of railway iron this year to Australia, British America, and British India; and altogether the aggregate shipments for the ten months ending Oct. 31 amounted to 793,619 tons, as compared with 509,968 tons in the corresponding period of 1868, and 513,071 tons in the corresponding period of 1867. These totals represent values of £4,233,269, £4,067,653, and £4,296,179, respectively.

MINERS' FIRE-DAMP ALARM LAMP.—An improved lamp, the invention of Messrs. HYDE, of West Bromwich, has been successfully tested at the Earl of Dudley's Oakham pits, in the presence of a large number of gentlemen well able to pronounce an opinion as to its merits. Upon the accumulation of a dangerous quantity of fire-damp the gas takes effect on the lamp by entering through the meshes of the gauze, and lighting inside it, as in any other safety-lamp; in about seven seconds the burning gas operates on a strip of lead, making it rotten, so that the weight of the valves, &c., breaks it through the middle, where it is thinnest, extinguishing the light, by shutting it up entirely from the air and gas. The valves in their descent set an alarm ringing, which continues for about two minutes. The whole of the work of the lamp is made of brass, and fitted loosely, so that there is no fear of its corroding or sticking. The lamp is not intended for the miner to work by, but as a safeguard against the gas, to be carried by the Inspector, or hung in the workings where the men are at work, or where there is any fear of accumulation of gas. The lamp should be hung high up, as the gas being lighter than the atmosphere ascends, and appears near the roof first. In the experiments at Earl Dudley's pits the party, after having had the principles of the lamp explained, proceeded to a sump made in the roof to the top of the coal—this hole was known to contain about 50 ft. of gas. Into this the lamp was hoisted on a pole, and in a few moments the alarm was sounded, and the lamp extinguished. It was refitted with a new piece of lead (the operation occupying less than two minutes), and the experiment repeated, with equally satisfactory results. The admirable manner in which the lamp acted gave the utmost satisfaction to all present.

NEW SAFETY-LAMP.—Mr. W. E. TEALE, of Manchester, has patented a new lamp, the special advantage of which is that in attempting to open it, whether to light his pipe or for any other purpose, the miner is certain to put the light out. There are other, though less important, advantages about the lamp—namely, that the flame can be regulated to any size; that the regulator is self-acting, and cannot get out of order; that neither lock, spring, nor pricker is required; and that double the illuminating power of any lamp now in use is afforded at one-fourth the cost. The lamp is called the "Patent Protector Colliery Lamp," and Mr. Teale gives the following description of it in his specification:—"The body of the lamp may be made the same as the Davy, Clanny, or Stephenson. The vessel containing the oil can be made as an ordinary oil-lamp; but it is proposed to introduce a lamp on the principle of the sponge-lamp, burning oil or colza-oil, specially prepared for this lamp by the inventor. The oil vessel is firmly fixed to a solid metal base,

having a screw or worm rising about 1 in. perpendicular with it. The wick-tube has another tube of the same length, made to slide easily up and down, in the centre of which is a circular flange fitted to it. This portion is screwed into the body of the lamp, which is continued from the gauze by a circular piece of metal, of 3 in. in length, having an inner screw at the bottom, corresponding with the perpendicular screw which forms the solid base of the lamp. Inside and immediately below the gauze of an ordinary Davy lamp is screwed in a circular rim, having two horizontal hinges opposite each other, which can move upwards only, to an angle of 40°. Placed alternately with, and rather higher than, the hinges are two fixed metal points or stops. The oil vessel, when charged and lighted, is screwed into the body of the lamp, causing the flange on the movable tube to elevate and pass the hinges, which then fall below it, and remain firm in their horizontal position, thereby preventing the return of the flange, so that in unscrewing or lowering the oil vessel the movable tube is carried up, the wick-tube is gradually diminished, and eventually the flame is extinguished. It is thus impossible to expose the naked light."

TRADE OF THE TYNE AND WEAR.

Dec. 16.—We have better accounts of the Steam Coal Trade in Northumberland; most of the collieries near Blyth, and in the district generally, have been well employed lately. There has been a good supply of ships in the Tyne lately, and business has been exceedingly brisk at the Tyne Dock, the export trade being very brisk, and also the coasting trade to London and other ports. There is a good demand, and many enquiries for the foreign trade generally; consequently, freights are higher than they have been for some time, both to the ports on the coast and to foreign stations. On the Wear business has also been pretty brisk, and most of the works have been kept well going. The demand has considerably improved for all descriptions of coals; house coal is in much greater request, and the coking coal collieries are fully employed. The demand for manufacturing coal is still somewhat limited, and the price received for it scarcely remunerative, but as the Iron Trade continues to improve the demand for this kind of coal must also improve shortly. The demand for pig-iron continues extremely good, and the prices of finished iron of all kinds are also well maintained. The demand for pigs, bars, rails, and ship-plates is most satisfactory. There is still too little demand for finished engines of all kinds, more particularly colliery winding, hauling, and pumping engines, the market being completely glutted with them. The demand for marine-engines and boilers is good, the rapid increase in the number of steamers keeping this trade very lively.

Two collieries are for sale at present in this district—the Lintz Colliery, situated in the north-western district of Durham, a coking coal of some repute and great extent, and also producing a considerable quantity of first-class fire-bricks. The celebrated Buxby Bank seam is worked here, and is of considerable thickness, and a large quantity of coal remains in the royalty, which is of large extent. This colliery is to be sold by Mr. Brough shortly in Newcastle, and as the coke trade has improved very considerably of late, and the prospect for coal and coke owners generally is decidedly encouraging, this extensive place will, no doubt, command some attention from capitalists. The situation of the works can hardly be surpassed, as the means of transit either by sea for export, or by rail for inland consumption, are all that could be wished, there being every facility for shipping the coal or coke, &c., at Tyne Dock or Sunderland, and equally facility for sending the coke to the iron makers of Cumberland, who buy most of the first-class coals produced. It is very probable that a well-known iron manufacturer and engine maker will take this place, which will prove especially useful to him, as a considerable part of the coke produced can be consumed in his own works, and the fire bricks also will prove equally so, as a great quantity of them also will be consumed on the works. The other colliery for sale is the old and remarkable work at Shilbottle, a few miles from Alnwick. A seam of coal has been worked here for a very long period, producing coal of a very hard kind—harder, indeed, than any description of coal worked in the North of England, much harder than any of the steam coals, and a considerable quantity of this remarkable coal remains to be worked, and also some other coals. This work has always been considered of much value for inland sale, and it will, no doubt, command attention, as it is entirely isolated from the Northumberland coal field, and has no rivals within many miles.

The manufacture of Guibal Fans continues here at a brisk rate, the demand for them being considerable. As lately remarked in this letter, the Guibal fan appears at present to be likely to oust all other means of ventilating mines. The Lemielle fan made a good stand against it, but experience seems to warrant the use of the Guibal; its greater simplicity, economy, and efficiency seem to be completely established. With respect to the furnace, the old and favourite means of ventilation, more especially in the North, it can bear no comparison with the Guibal, especially in mines of moderate depth. Some very interesting experiments have been conducted lately in this district with this fan, at Pelton Colliery and other places, and good results have been obtained; at the Pelton Colliery upwards of 100,000 cubic feet per minute was recorded by the anemometer, the machine moving at a speed which is quite practicable to be maintained. We will give very shortly an abstract of these experiments, showing the comparative results as obtained by the most careful experiments made at several collieries.

The adoption of Juckes's Furnace for the prevention of smoke and saving of fuel also makes progress, several manufacturers and colliery owners having adopted, some the apparatus of Juckes's, and others that of Vicars's, of Manchester, lately. As the Act of Parliament for the prevention of smoke is now applied more stringently, the adoption of these machines is imperative. Mr. Vicars has fitted up several furnaces on his system lately at the Hetton Collieries; and Mr. Nelson, of Sunderland, has put several of Juckes's apparatus lately at Allhusen's large chemical works on the Tyne, and also at the Pelton and other collieries. Both these machines work well, and it is difficult to determine which has most merit; it is commonly believed that the absence of smoke does not imply a less consumption of fuel, but although this is, perhaps, nearly correct in one sense, yet a considerable saving is effected by the machines mentioned, as an inferior kind of coal is used, which is got at a very low rate. At Hetton Colliery only the small dust is used, and similar coal is also used for Juckes's machine, in some cases the saving in fuel amounting to 40 per cent.

At Middlesbrough, on Tuesday, the market was considerably stronger than last week. This was anticipated, as several days ago No. 3 foundry iron commanded 50s. per ton. The closing rates were—No. 1, 54s. 6d.; No. 3, 51s.; No. 4, 50s. 6d., or on trucks at makers' works, net cash. There was very little business done, and buyers who had not pressing orders on hand refused to negotiate, even at a shade less. Foreign deliveries are very large at present, and some of the makers have barely sufficient for their commitments. Seaward deliveries of iron have slightly increased, but ships are scarce in the Tees, and the tempestuous weather interferes with the trade, both foreign and coastwise. The warrant stores again show a decrease, and the figures posted to-day are 32,249 tons. The finished iron trade in plates and rails was reported good, as well as in some branches of shipbuilders' bars. Merchant iron was not in great demand. The local rail makers reckon on a steady winter's trade. The wages question, which now occupies the attention of the masters as well as the delegates of the men, will, it is expected, again come through the hands of Mr. Rupert Kettle in the Court of Arbitration, for adjustment.

REPORT FROM SCOTLAND.

Dec. 15.—The prevailing quiet which usually characterises the closing days of the year in our Pig-Iron market has proved exceptional this year, and we look as if we would close with a vigorous and excited market. The "bulls," who seem to have got the upper hand, are, it is said, a little divided amongst themselves whether they should attempt 60s. per ton before closing the year. Business seems rather in their power. Middlesbrough pigs are running out of store at the rate of 7000 to 8000 tons per week. Prices of pigs are everywhere advancing; some Scotch brands are getting scarce. Shipments from the various Scotch ports have exceeded last year by 63,000 tons. Consumers are in the market. What time more opportune than this for a rise? Such is the state of our market to-day. Since last report prices have advanced from 56s. cash to 57s. 1½d. cash, and it depends entirely on the "bulls" what the price is to be to-morrow. Some days the market has been excited to an intensity as great as during the memorable period of 1866-7; but perhaps the remembrance of those perilous days will act as a counteraction on merchants and moneyed men to an extent that will prevent them from being again taken in the same snare. The shipments of the week are large for the period of the year, being 11,275 tons, against 7990 tons in the corresponding week last year; and make, for the

past 50 weeks of the year, a total increase on last year to date of 64,925 tons. To-day the market is considerably weaker, and business was done down to 56s. 10½d. cash, and 57s. 1d. one month, closing buyers 57s. cash, and 57s. three months, sellers asking 1d. per ton more. No. 1, g.m.b., 56s. 6d.; No. 3, 55s. 6d.; Gartsherrie and Coltness, 64s.; Langloan and Summerlee, 60s.; Glengarnock (at Ardrossan), 59s.; Eglinton (ditto), 57s. 6d. Market heavy, holders seeking to realise profits. Makers are now doing a large trade in manufactured iron, and both first and second-class houses are booking orders at an advance of 15s. a ton on quotations current a month ago, being 5s. above last declared advance. These altered quotations apply to all kinds of manufactured iron; and the numerous vessels which have been contracted for during the last three months will, it is believed, still further advance the price of ship iron at the beginning of the year.

The improvement in the Coal Trade continues, but the want of haulage on the Caledonian line prevents supplies coming forward in sufficient quantity. The slight increase in price has given a tone of cheerfulness to operations and a vigour to transactions which has been too long absent. The shipments have also been increased over those of the same week in last year, 28,520 tons being the quantity shipped for the eight days just ended, against 22,855 tons for the same in December of last year. In the Glasgow district efforts are being made by the colliers to have their wages advanced to those paid in the Wishaw district—4s. 6d. per day; while in the Coltness section of the Wishaw district masters are reported as being likely to succeed in reducing their hands to 4s. a day. In the latter district the coal is for steam purposes, and having large stocks, and only a very limited demand during the winter months, it is feared the colliers will have to give way.

We have come now, it would appear, to the last of the Kildonan gold diggings. An "order" has been communicated to the diggers on the ground that after Saturday no new licenses were to be issued, and that at the expiry of those now running the diggers must strike their tents and march out of the locality.

This week a number of new contracts have been booked at the Clyde shipyards, the Cunard Company having now about 20,000 tons building at the various works on that river.

To-night the adjourned discussion on the "Patent Law" will be resumed by the members of the Philosophical Society, and we understand that Mr. S. C. Lister (inventor of the wool-combing machine) is expected to be present, and take part in the discussion.

The Association of Engineers, at their ordinary meeting, last week, had a paper read on "Advanced Marine Engineering." It alluded especially to the advantages possessed for long voyages by compound engines, when fitted with the recent improvements. The writer then entered into a minute comparison between the respective merits of screw and paddle steamers, with special reference to the vexed question of positive and supposed negative slip. The paper was illustrated by numerous drawings and models, and Mr. Charles Smith received a vote of thanks for bringing the subject forward.

At the next meeting of the Geological Society Mr. John Young will read a paper "On the Vertical Range and Local Distribution of the Carboniferous Fossils in the Coal Fields of the West of Scotland."

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Dec. 16.—As the close of the year approaches a want of orders is experienced in South Staffordshire, and several of the first-class houses are only working about half time, whilst the second-class makers are accepting lower rates. The buoyancy of the Cleveland market is a good sign, but buyers generally are avoiding giving orders, except for urgent necessities, and it is not yet certain that the advance of 20s. per ton will be justified. Pig-Iron is dearer, and fresh furnaces are to be put into operation shortly. The Wednesbury works for the production of railway material are well employed. The failure of Mr. Charles Myring, of Walsall, bridge cutter and currier, is announced, with liabilities amounting to from 6000£, to 8000£, and it is feared with slight assets.

On Tuesday a case under the Factory Acts was heard by Mr. Isaac Spooner, the stipendiary magistrate, at Wednesbury. Messrs. Colburn and Sons, of the Park Lane Furnaces, Tipton, were charged, on the information of Mr. Blenkinsopp, Deputy Inspector of Factories, with three offences under the Factory Acts. First, with having, on Nov. 12, employed at their furnaces, at night, Cornelius White, a child under 13 years of age; next, with having, at the same time, employed at their furnaces Joseph Millington, a child under 12 years of age; and next, with having, on Nov. 19, had the boy Millington employed for a period exceeding seven days without having obtained a surgical certificate, as required by the Acts. Mr. Colburn admitted that the boys were employed, but said it was done without his knowledge; but he declined to avail himself of the offer of the magistrate to show that another person was liable. It appeared that in June last the Sub-Inspector had explained the law to one of Mr. Colburn's sons, finding a boy at work at night. Mr. Colburn said the boys were employed in filling barrels with limestone. The stipendiary said boys of the age of those under notice required plenty of sleep and rest, in order that their physical conformation and their mental as well might be brought to perfection, but if they were kept at work at night all the efforts of other persons on their behalf would be thrown away. The offence was a most serious one, and he would ask the defendant what, as a father, he would think of a growing child of his, 12 or 13 years of age, being kept at work, especially such work as this, at night. [The defendant said he was prepared to admit it was not right; he had always been desirous of obeying the law.] It was a terrible thing, and he felt he ought to fine in the full penalty of 5£, in two of the cases, especially as a warning had been given to the defendant before. He should not go into the case of the surgical certificate, the fine in the other case of the boy Millington being sufficient to cover that.

A remarkable case under the Truck Acts was heard at Hales Owen on Tuesday. The defendant was Mr. Thomas Moore, a nail factor of Hasbury, who was charged with three offences. The complainant, James Batterfield, a natter, is described as clothed in rags from head to foot. He had worked for the defendant for two years, and said that he was paid only about half the price list of his work, and of 12. 6s. 9d. due to him all but 2s. 3d. was stopped for butter, tobacco, lard, &c., had by his wife from the shop. His wife, an equally wretched looking creature, said the goods supplied were of a very inferior character, and she had often to bake the bread over again before it could be eaten. She said that she was compelled to have the goods on pain of instant dismissal. The defendant positively swore that his wife managed the shop, and that he did not know which of those employed dealt at it, and he swore that he paid the whole amount of the wages in money, and that was always his practice, and he exercised no compulsion. Witnesses were called to support this evidence, but when the magistrates asked for the books objections were made; and when at last they were fetched several leaves were torn out here and there, and in one place half a page was gone from next to complainant's name. One of the magistrates pointed out accounts of goods had from the shop by workpeople in the year 1868. Being asked to explain this, defendant said, "I've told you before that's before I and my wife dissolved partnership." [Laughter.] The magistrates convicted, and fined defendant 5£, in each of the three cases.

The colliers and thin mine workmen have now commenced to subscribe towards the Hartley Fund. They have agreed to raise 500£, which is to be added to the 2500£ the trustees have in hand, and Mr. Jeffries, of Dudley, has accepted the office of honorary treasurer to the fund. He has up to the present time received, as a first instalment, the sum of 12. 7s. from the men employed by Messrs. Robinson and Jones, of the Bird's Leasows Colliery, and he offers a personal donation of two guineas as soon as the colliers' subscription reaches the sum above named. The miners should promptly raise the amount required from them, and so secure the 500£.

The jury empanelled to enquire into the circumstances attending the fatal boiler explosion at the Britannia Iron Works, near Wolverhampton, after hearing a mass of evidence, have returned a verdict to the effect that the explosion came to their deaths by the explosion of an old and much-worn steam-boiler. In an addendum to the verdict, the jury also express their regret that a more complete examination of the boiler had not been detected. Had it been proved that the owners or their servant were informed of the dangerous state of the boiler a criminal verdict would have been returned against any person who had been guilty of neglect. The jury further recommend the appointment of Government officers to inspect such boilers.

The Dudley Correspondent of the *Wolverhampton Chronicle* says—

All the producers of first-class iron continue to keep their works pretty fully on, and have sufficient orders upon their books to keep their mills and forges in fair operation for the remaining part of the quarter. The Preliminary Meeting of the Iron Trade will be held at Birmingham on Dec. 30, and no doubt existing rates will be confirmed. A considerable quantity of merchant iron has still to be delivered at the old rates, which, owing to the high rate of wages, and the advance upon fuel, tells adversely upon the manufacturers so circumstanced. What the condition of the trade will be two or three months hence cannot very readily be predicted, but it is thought by some that things will improve towards the spring of next year. The men continue very peaceable, and attend to their work regularly, and well enough they may, for, beyond all doubt, they take the lead as regards wages, especially when the prices of iron are taken into account, it being a well-known fact that the declared advance of 20s. per ton upon finished iron is only realised by comparatively few of the trade, and in these particular instances the masters have certainly the worst end of it. The orders coming in are still for small sizes. For plates and rails the market rules dull. The proprietors of some of the large "fitting yards" continue to employ a goodly number of hands, but others have put a portion of their men upon short time, and discharged others, so that in these departments things do not look so bright as we could wish them, nor is there any immediate prospect of an improvement. There still continues a large demand for coal, both by land and water. The colliers and miners have a full of their settled down to their work very quietly at the advance proffered to them by their masters. The rate paid to the thick coal colliers is 4s. 6d. per day, and the pikemen, if they choose, can do in many instances a day and a half per day. The rate of wages paid to the thin mine workmen is 3s. per day, but it must be

observed that the "loaders and brushers" in the ironstone pits are getting considerably more than this, so that colliers and miners are now very fairly circumstanced, if they will attend to their work.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Dec. 15.—The iron works still continue to be very fairly employed, whilst there is a full average production of pig-iron from the various furnaces both north and south. The foundries are now doing a very fair business, not only in pipes of various sorts, but also in general castings, so that the trade generally is better than it was some months since. There is still a good demand for coal, and a large tonnage continues to be sent to London, the Midland Railway for some time past carrying a much larger quantity in that direction than almost since it was able to reach St. Pancras on its own rails, Clay Cross, as usual, taking the lead, sending away something like 1000 tons a day to the metropolis. From Eckington, and the collieries to the south also, a very fair business is being done. There is scarcely so much activity as there has been in Steam Coal, as is generally the case towards the close of the year. At the Burton-on-Trent district the collieries are now kept well going, a good deal of coal from there being sent to the West of England. On Monday next it is expected that the new line of railway from Sheffield to the Midland, at Chesterfield, will be examined by the Government Inspector; and it is expected that the carriage of minerals over it will be at once commenced. The line itself is all but complete, but the stations have not yet been erected. From the collieries in the new route something like 500,000 tons of coal a year will be sent on to the main Midland line. The coalowners at Dronfield, which is only about six or seven miles from Sheffield, have been desirous of having a moderate special rate to the last-named town, to which a good business in coal and coke has been done by carting. The company, it is said, ask 2s. 1d. per ton, besides the usual charge for wagons, whilst at Chesterfield, which is about the same distance, the charge is only 11d. per ton. It is, therefore, apparent that the company are not at all desirous of having an active competition as to rates between two parts of its own line, whilst it has a good outlet for that portion of the line nearest to the south. From Mexborough, and other places on the Yorkshire portion of the Midland Railway, a good deal of coal is taken to Sheffield and southwards, so that by giving a low rate to Dronfield for the Sheffield trade it would, in all probability, be sacrificing the trade it has on a portion of its system, and which could be taken by other lines at hand for that on the new branch, which is entirely dependent on it for conveyance by railway. Wisely, therefore, the Midland fosters, as much as it can, the extending of its mineral traffic to the South; and there can be no doubt whatever but what the Dronfield coalowners will find it to their interest not to depend so much on Sheffield as on more southern markets, recollecting that there are collieries on the Yorkshire side of Sheffield as near to that town as they are, and with the great advantage of a thicker and a better quality of coal.

As the year draws to a close there is more activity in several branches of the Sheffield trade, and some considerable orders are on hand on American account. Makers of railway material, heavy steel goods, and files are now kept well going, whilst a fair business is being done in plates. At Rotherham, Milton, and Elsecar the works are doing well, the hands being fully employed in the manufacture of most descriptions of iron material, including plates, rails, tyres, axles, &c. The colliers throughout South Yorkshire are now doing tolerably well, full time being the rule at nearly all of them. The trade in house coal to the metropolis has greatly improved of late, and for some weeks past the Great Northern Railway has carried a much larger tonnage from the district than it has during any period of the year. There has not been so much doing with Hull during the last few days, the little activity during the previous week being attributable to the loading of a few outward bound vessels making the last voyage of the season to the North of Europe. From Grimsby business has been tolerably fair for the season in steam coal, but our colliery proprietors complain of the low prices which prevail, and which, no doubt, have resulted from the keen competition of other districts in trying for the trade have induced, and which shippers are not slow to take advantage of. There is no change in the state of affairs at the Thornecliffe Collieries, where the men have now been out 39 weeks, or at those of Mr. Huntsman, where the old hands have been out about 48 weeks, both of which have cost the Miners' Association more than 20,000*l*. A good number of men are at work at both places, and there does not seem the slightest appearance of either firm giving way.

REPORT FROM MONMOUTH AND SOUTH WALES.

Dec. 17.—It is not probable now that there will be much business done at the principal works of the district for the next two or three weeks, as the time for stock taking having arrived will prevent some of the branches being fully employed; and the Christmas holidays will take away a large number of the workmen, who generally try to pass their Christmas away from the scene of their every-day labours. It may be said that during the present week there has been no lack of employment, speaking generally of all branches of trade. On the contrary, it is remarkable that now, for the first time in the history of Welsh iron manufacture for at least six or seven years past, a complaint has emanated from at least two establishments that there is a difficulty experienced in securing suitable hands for some of the departments. This undoubtedly will be accepted as a piece of very cheerful intelligence, as it shows that now scarcely a workman in the district need be out of employment, if he be able and willing to work. As before reported, the shipments of iron continue to be principally to the ports of the United States, the south-west coast of America, and the continental markets. From the last-mentioned places advices indicate that the requirements of next year will be large, to effect the completion of the vast extension of railway communication now in progress and those in contemplation. Home business is now mainly confined to small and unimportant specifications, which may be regarded as just sufficient to clear buyers for the next three or four weeks, and by that time the accounts for the quarter will have been made up, and the position of the trade more accurately defined in regard to the future. By that time, also, it is expected that buyers will be prepared to enter into more extensive contracts.

In reference to the Steam Coal Trade, there is nothing particularly important to record, but it is gratifying to find that the steam coal collieries are fairly employed in most parts of the district, and few of the pits are now on half-time. Advices from the continental markets are decidedly favourable as to future enquiries, and it is probable that early in the new year French, Italian, and other continental houses will purchase more extensively than they do at present. A further slight impetus to foreign demand will place the trade in a very satisfactory position, inasmuch as it will be certain to lead to an advance in quotations.

The Ebbw Vale Steel, Iron, and Coal Company (Limited) have just announced an interim dividend of 10s. per share for the six months ending September. This compares with a distribution of 7s. 6d. per share for the corresponding six months of last year, which indicates that the position of the company is gradually improving. With the present encouraging prospects of the iron trade a larger distribution may be confidently anticipated for the current six months. The cost of all additions and improvements to the company's vast works is borne by revenue, the capital account being practically closed, consequently the profits divided have been unmistakably and legitimately earned.

An enquiry has been held into the circumstances of the pit accident which occurred at the Voerhuys Colliery, Dowlais, on the 6th inst., before Mr. G. Orenton, coroner, Mr. Wales, the Government Inspector of Mines for the South Wales district, being also present. Witnesses were examined as to the circumstances of the accident, by which the two men, named Long and Dunstan, were killed. Mr. Thomas Jenkins, foreman engineer, in giving evidence, said it was his opinion that the accident was caused by the rope overlapping, and then slipping over the end of the drum on to the shaft, which would produce a sudden jerk, and fracture the rope. A similar occurrence had taken place at the pit 12 months previously, when they were raising an empty carriage, and the rope slipped off the drum; but the engine being stopped immediately the rope did not break. That rope was changed, but no alteration was made in the drum. Mr. Samuel Truman, mining engineer, in the employ of the Dowlais Iron Company, stated that the drum in question was a spiral drum, the smallest diameter of it being 7 ft., and the largest 22 ft. The rope was made of iron-wire, being 1½ in. diameter. It had been in use since June 3, and the drum had been in work since 1863. The ropes were generally used for seven or eight months. The rope in question was made by Messrs. Elliot and Co., of Cardiff. He suggested that some alteration should be made in the pulleys and flanges, so as to prevent, if possible, the occurrence of such accidents. Mr. Wales, in his report upon the accident, stated that the great feature in the spiral drum was to enable the engine to lift the loaded carriage and rope, which were of

great weight, in deep pits without the application of any extra power, and a capital invention it was. So far as he knew, there were only five such drums at work in the district, exclusive of those at the Dowlais Iron Company's collieries. Since the accident at No. 1 pit he had made a careful inspection of those drums, and he had found that they varied in size and position. In his opinion, what most affected the proper and safe working of the spiral drum was the angle which the rope formed between the pulley over the shaft and certain portions of the drum. In this case the angle was 15°, and in his opinion the accident was principally due to that fact, and not to any defect in the rope, which was broken by the jerk caused by the rope falling off the drum. As the drum was concealed from the sight of the engineer he would recommend that all the men be lowered and raised at the shaft where the smaller engine was used. In conclusion, he remarked that in erecting spiral drums care should be taken to have the rope at as easy an angle as possible, and in no case should it exceed 10° or 11°. The jury returned the verdict, "That the deceased came to their death accidentally, from the rope slipping off the drum on to the shaft, and thereby giving a jerk to the rope which caused it to break. We recommend that the suggestions of Mr. Truman, confirmed by Mr. Wales, be carried out at once; as also the suggestion of Mr. Wales that the men should be lowered and raised by the shaft exclusively meant for that purpose."

The Hirwan and Aberdare Coal Company (Limited) is now being wound-up in the Court of Chancery, and the works have been at a standstill for some months past. It is, however, confidently believed that Messrs. Lockett and Jenkins, coal merchants, of London, have taken the works, the arrangement and terms, it is understood, having been completed, and it only awaits the formal signature of the landlord to put all things right.

In an action, which was brought in the Court of Queen's Bench, by the official liquidator of the affairs of the United Merthyr Collieries Company (Limited), which proved an unsuccessful one, to recover unpaid calls upon 100 shares, which were taken by the defendant in the above company, and a further sum of 40*l*. 18s. 8d. for interest upon the unpaid calls, a verdict for the plaintiff for 690*l*. 18s. 8d. was given.

The arrivals at Swansea include—the H. H., from Tilt Cove, with 400 tons of copper ore, for H. Bath and Son; Lorenzo Semprini, from Bilbao, with 394 tons of iron ore, for W. H. Thomas; Fidella, from Antwerp, with 213 tons of burnt clay to order; Carl, from Bordeaux, with 330 tons of pitwood to order; Augusta, from Bordeaux, with 330 tons of pitwood to order; Jeune Augusta, from Redon, with 110 tons of iron ore, for Thos. Walters; Edith May, from Carlotford, with 345 tons of zinc ore, for H. Bath and Son; Deux Mères, from Requijada, with 125 tons of calamine to order.

NEW STEAM EXCAVATOR.

That many works calculated to prove of considerable public utility are left undone in consequence of the enormous cost of constructing them with manual labour is so well known, that inventors have long exerted themselves to produce a machine capable of performing the more laborious work of excavating in a less costly and more expeditious manner; and from the many purposes to which a thoroughly reliable steam excavator could be applied, it can scarcely be doubted that the inventor of such an apparatus will be well rewarded for his labour and ingenuity by securing a very large market for the machine. During the past week a series of practical trials have been made in the grounds of the Ashburnham Park estate, Chelsea, with the model of a new steam excavator, the invention of a Belgian engineer, Mr. F. J. Vandennine, about to be introduced into this country by Mr. Charles Young, C.E., of Duke-street; and judging from the satisfactory way in which the model (which it should be stated was of sufficient size to cut a trench 5 feet wide and 2 feet deep, and, therefore, large enough to permit of an opinion being formed of its merits) acted, although employing less than 3-horse power, there are good grounds for anticipating that for railway and canal work, and, with some modifications in detail, for tunnelling purposes also, the new excavator will prove of great practical advantage.

The Vandennine excavator is complete in itself, carrying its own boiler, engine, and railway (or at least the equivalent of a railway), and discharging the debris behind it ready to be removed by the few labourers required when the machine is used. The machine consists essentially of a pair of vertical spindles, which carry a series of picks, or cutters, arranged in a spiral line from the bottom upwards; and as the spindles rotate right and left respectively all the debris removed is brought to a common centre, whence it is lifted out of the way of the machine by an endless band of metallic buckets, about 2 ft. long and 6 in. wide, and deep. As these buckets reach the top of their course they deliver their burden on to an endless metallic apron, which extends beyond the back of the machine, and in turn discharges itself into a suitable shoot, so that ample room may be left for the man who attends to the machine and stoking to work without inconvenience. It will, of course, be understood that by a different arrangement of the apron the debris could with equal facility be deposited either in the railway trucks ready for removal, or, in the case of canal making, on the banks, but these are mere details which might be varied with each machine constructed. To test the power of the machine to deal with ground in which obstructions in the shape of boulders, or otherwise, were likely to be met with, we took the opportunity to throw a brick or two between the two sets of picks in such a manner as not to give the opportunity of overcoming the difficulty by breaking the bricks; the result, however, was highly satisfactory, the bricks ultimately brought over the apron with the other debris, without injury to or stoppage of the machine.

The forward motion of the machine is produced by the slow rotation of suitable rollers, for which an endless band or platform is provided, the forward motion exactly corresponding with the amount of work done by the cutters. There are suitable arrangements of the same extreme simplicity as the other parts of the machine to facilitate working horizontally or on an incline, as desired, and to prevent damage to the machine in case of obstructions, which are beyond its power to overcome, bands are in most parts substituted for the gearing, which has done so much to hinder the successful working of machines for the same purpose hitherto brought forward. It is estimated that a full-sized machine (the model is on the scale of one-sixteenth) on this system will perform the work of from 300 to 350 men in a day of 10 hours in excavating and loading the soil into trucks, at a net cost of 2*l*. 10s. The machine being of a class in which the readers of the Journal are much interested, an illustrated description of the invention will be published next week. It should be stated with regard to the amount of work which the excavator is capable of performing that the model progresses at the rate of 4 in. per minute, and that the speed of the large machines will be 2 feet per minute. In consequence of the great interest caused by this invention it has been arranged to have it at work from 10 o'clock to 4 o'clock on Wednesday and Thursday next.

MINING, METALS, AND MINERALS—PATENT MATTERS.

BY MICHAEL HENRY.

Patent Agent and Adviser, Memb. Soc. Arts, Assoc. Soc. Eng.

Mr. W. R. LAKE, of Chancery-lane, has specified a patent for apparatus for generating and condensing steam, and furnaces for steam generators and other purposes: communicated to him from abroad by Mr. T. T. Prosser, of Chicago, United States. The first part of this invention relates to a furnace which may be used in a steam generator, or for many other analogous purposes, and it consists in placing within the fire-box of such furnace a chamber opening above the grate bars, through which the coal is fed, which coal, before falling upon the grate bars, is exposed to the action of the heat evolved within the fire-box while retained in the said chamber, above which is a cover for preventing the escape of the gases distilled from the coal, which gases may be utilised either by bringing them down in a pipe or pipes, and discharging them below the incandescent coke through which they will pass and be consumed, or they may be conducted away in pipes to be utilised in another place. Among the uses to which this invention is applicable is that of desulphurising ores in furnaces. The ores may be fed into the chamber with the coal, and as they are heated by the combustion of the coke on the grate, the sulphurous gases and sulphurets will be expelled by the action of the heat, and pass away with the gaseous products of the distillation of the coal, leaving the metallic bases to be melted, and to flow down into the bottom of the furnace or cupola. The second part of this invention relates to the condensing chambers of steam generators, adaptable to use as jackets for the same, and it consists in surrounding the shell of the generator by an air space enclosed between the generator and a steam jacket, which is formed by a shell enclosing a space into which the escaped steam is discharged, and in which it is condensed. The jacket, therefore, serves not only to protect the generator from loss of heat by radiation, but also acts as a condenser, from which hot water, the product of condensation, may be again supplied to feed the generator with pure distilled water. The advantages resulting from this construction of the generator and steam jacket are in part—first, the water supplied to the generator, except the fresh water supplied to compensate for that lost by leakage, is distilled, and the rapid incrustation of the boiler is thereby prevented; second, the saving of most of the heat ordinarily lost by the condensation of the steam in a condenser, or by discharging it into the open air, the heat or such waste steam being ordinarily represented by 1200° as the sum of what is called the sensible and latent heat of steam; third, the saving of much of the heat ordinarily lost by radiation from the shell of the steam generator.

Mr. J. SHACKLETON, of Bradford, York, engineer and machinist, has obtained a patent for an invention relating to utilising the exhaust steam from steam-engines, and apparatus for regulating the discharge or flow thereof. This invention consists in using exhaust

steam for heating or boiling water or other liquids in the process of dyeing, scouring, soap boiling, brewing, cooking, or other similar purposes; also for heating or warming the rooms of buildings, railway carriages, or factories. For this purpose he applies a self-acting regulator valve to the ordinary exhaust pipe of the steam-engine, and also any suitable arrangement of piping connected to the exhaust pipe between the valve and the steam-engine for conducting the said exhaust steam to the place and for the purposes required. This valve is constructed similar to an ordinary mushroom stop valve, but the valve is under the action of a spiral spring, which is regulated or adjusted by a set screw to any desirable amount of pressure, so that the exhaust steam will open the valve, and the steam will escape by the ordinary exhaust pipe. The conducting pipe is also arranged to pass through the flue from the boiler furnace in a series of coils of any convenient form, whereby the said exhaust steam becomes superheated before being applied to the various uses to which it is applicable.

Mr. G. KITCHIE, of Folkestone, has obtained a patent for the construction of stop hinges. For many purposes a strong hinge is required for connecting together bars or rods, or other pieces of wood or other material, in such manner that the pieces or parts so connected shall be able only to move through a certain fixed angle. A hinge for this purpose is constructed of a plate of metal adapted to be fixed to one of the pieces or parts to be connected by screws or other fastenings, and having a boss upon it through which the pin of the hinge is passed. On either side of the boss a metal plate is applied. These plates are adapted to be fixed to the other of the two bars, pieces or parts, to be connected, one on either side of its extremity, by screws or other fastenings. The hinge pin passes through the ends of the side plates at the corners of the plates, and the plates are secured by rivetting the ends of the hinge pin. Two pieces or parts connected by means of this hinge will be free to move through an angle, which is the complement to that at the corner of side plates through which the hinge pin is passed. At one extreme position the sides, and in the other the ends, of the side plate rest against the face of the plate on which the hinge boss is formed, and so the angle of motion can be varied by varying the form of the ends of the side plates.

MANUFACTURE OF IRON.—Mr. ANTONIO BRADY, of Maryland Point, Stratford (for Mr. E. Brady, of Philadelphia), states the nature of his invention for Producing Pure Iron direct from Crude Iron Ore to consist in mixing and manipulating crude iron ore ground or reduced to a powder with sulphate of lime, sulphate of soda, sulphate of alumina, or with any alkaline sulphate pulverised, and both articles having been roasted or otherwise assimilated to about equal degrees of temperature, and then a fusion or smelting of the materials to be effected by the usual methods in an ordinary furnace, the chemical changes or results consequent thereupon separating, dissipating, and combining and depositing the impurities of sulphur, silicon, and other bodies, and leaving the molten iron pure, or converting it into malleable iron or steel. The oxygen being disengaged by a decomposition of the dry sulphate above mentioned, caused by smelting or fusion of the crude iron ore, will unite with the carbon or a portion thereof in the iron, and will pass off as carbonic acid gas, and sulphuretted iron, phosphoretted iron, and other ingredients will remain in the molten iron mass; and these, having a strong affinity for the lime and other ingredients, will combine and form slags, which latter will be deposited at the bottom of the furnace by specific gravity, leaving the hot iron free from the impurities of sulphur, phosphorus, silica, carbon, and such like impurities, and the pure iron can be gradually cooled, and rolled, hammered, or otherwise, into malleable iron, or it can be converted into steel by suddenly cooling it by immersion in cold water. The quantities, or proportions, of materials and ingredients to be used cannot be specified very definitely, because the same depend upon the greater or lesser amounts or shares of the impurities contained in the crude iron ore, which vary materially according to its quality, requiring a larger or smaller quantity, or proportion, of the said dry sulphate and other ingredients, to be determined by a practical experience in each instance. What Mr. Brady claims as his invention, and desires to secure by Letters Patent, is the mixing and manipulating by comminuting mechanical processes of crude iron ore or reduced to powder with sulphate of lime, sulphate of soda, sulphate of alumina, or any alkaline sulphate pulverised, and both articles having been roasted or otherwise assimilated to about equal degrees of temperature, as nearly as may be, and then a fusion or smelting of the metal with the said dry sulphate, to be effected by the usual methods in an ordinary furnace, the chemical changes or results consequent thereupon separating, dissipating, combining, and depositing the impurities of sulphur, phosphorus, silicon, carbon, and other bodies, and leaving the molten iron pure, and it can be converted into malleable iron and steel, substantially as set forth.

IMPROVEMENTS IN PUDDLING IRON.—The object of an invention recently patented by Mr. H. E. NEWTON, of Chancery-lane, is to produce iron of a better quality than other puddling processes will yield, and with a less expenditure of fuel, labour, time, and wear and tear of tools and apparatus, and there can be no doubt that if this subject be attained the invention will prove an extremely valuable one. Well comprehending the merits and defects of the ordinary puddling process, and of the several processes which have been devised to improve it, the present invention seeks to combine them. It consists in mixing cast-iron divided into coarse granules, or pieces varying from one-eighth of an inch to an inch in bulk, with oxide of iron, then melting, stirring, and boiling them together; the process being subsequently completed by balling the iron thus obtained in a puddling furnace.

The success of the process appears to depend rather upon improvement in detail than upon absolute novelty, and there can be no doubt that the success of many of the greatest inventions have been due to the same cause. The inventor points out that care must be taken not to make too large a proportion of small granules, as in that case they would quickly be decarbonised and rendered infusible, and thus prevented from melting and mixing in a liquid condition with the liquid iron oxide—he considers such a mixture of the iron (in a liquid state) with the liquid oxide is indispensable to the complete success of the process. The granulated iron and ore, suitably proportioned, is mixed thoroughly and evenly, and the mixture is charged into the puddling-furnace in the same quantity that would be used for an ordinary charge of pig-iron; the heat is now let on, and the changes are so rapid that within two or three minutes the stirring of the mixture must be begun, in order to raise the cooler granules from the bottom and allow the hot upper granules to descend, thus hastening the melting down and keeping the iron and oxide thoroughly intermixed; the boiling next begins, and the stirring of the boiling mass is continued; in about eleven minutes the clinder will drop from the iron, leaving the latter in spongy lumps, which require turning over frequently for about ten minutes to complete the decarbonisation. The iron is now in a state of greater purity for being formed into puddled balls, and withdrawn from the furnace.

MR. THOMAS TREWEEKE, UNY LELANT, HAYLE, CORNWALL, GENERAL MERCHANT. MR. TREWEEKE has always ON SALE PUMPING ENGINES, WINDING ENGINES, STAMPING ENGINES, and every other description of materials used in a mine, both new and secondhand, of the very best quality and manufacture, and upon the easiest terms.—Dec. 4, 1869.

CAPTAIN ABSALOM FRANCIS, MINING AGENT, ENGINEER, AND SURVEYOR. The great success which is attending the opening and working of the Mines in the counties of Cardigan and Montgomery, and the many properties placed at the disposal of Capt. ABSALOM FRANCIS, induces him to offer his services, either to ADVISE, INSPECT, REPORT, or SURVEY, for Mining Companies or private shareholders. For terms, apply to Capt. ABSALOM FRANCIS, as above.

MR. J. S. MERRY, ASSAYER AND ANALYTICAL CHEMIST, SWANSEA.

MR. THOMAS THOMAS, ASSAYER &c., COPPER ORE WHARVES, SWANSEA.

NEVADA FREEHOLD PROPERTIES TRUST. CHAIRMAN—The Hon. JAMES TOBIN. Major General Mason, the trustee deputed to proceed to Nevada to examine the mines and register the titles to the properties, has brought home a most satisfactory report, together with numerous samples of ores taken by himself, and three bars of silver, produced from 3 tons of ore mined and melted under personal supervision, all of which are open to inspection at the Offices of the Trust. By order, C. H. THOMAS, Sec., pro tem. 22, Moorgate-street, London, E.C.

THE HALIFAX GOLD MINING COMPANY (LIMITED).

Capital £50,000, in 25,000 shares of £2 each. First Issue 10,000 shares. Deposit £1 per share, payable on application, and £1 per share on allotment. Share warrants to bearer will be issued, or share certificates if required. The whole of the preliminary expenses are paid by the vendor.

DIRECTORS. Major HENRY JELF-SHARP, Chairman of the Australian United Gold Mining Company. J. MACGREGOR MACKAY, Esq., Director of the Anglo-Australian Gold Mining Company. CHARLES RULE, Esq., Director of the Braganza and the Guerrero Gold Mining Companies (Limited). The Hon. JAMES TOBIN, Chairman of the Nevada Freehold Properties Trust (late of Halifax). LEONARD WRAY, Esq., Director of the New Zealand Quartz Crushing and Gold Mining Company (Limited), &c. BANKERS—Messrs. ROBERTS, LUBBOCK, AND CO., Lombard-street. SECRETARY—HUGH HENRY ROCHE, Esq.

TEMPORARY OFFICES. 1, GRESHAM BUILDINGS, BASINGHALL STREET, E.C.

ABRIDGED PROSPECTUS. This company is established for the purpose of acquiring and working gold mines in the province of Nova Scotia, as occasion may from time to time offer, and to reduce quartz, &c., at the company's mills, for other mine owners in the neighbourhood of the company's works. Such gold-producing lodes as these afford a far higher promise of profit than most of the Brazilian and Australian Mines, now so eagerly sought after by the public. Indeed, it is confidently believed that, even with the present imperfect machinery and plant, the mine is already capable of paying more than a 15 per cent. upon the whole of the present issue. They are convinced that by an outlay of £3000 in improved machinery, and on the development of the mine, this fine property can be brought into a condition to pay fully 100 per cent. per annum upon the paid up capital. Detailed prospectuses, with every information, may be obtained at the bankers, and at the company's offices.

VALUABLE CORNISH MINING MACHINERY.

MESSRS. J. C. LANYON AND SON have FOR SALE a very superior lot of the above, including—
80, 60, 50, 30, and 24 inch PUMPING ENGINES;
24 inch ROTARY ENGINE, with CAPSTAN;
22 inch ditto, with CAPSTAN and CRUSHER;
Several good BOILERS;
A large assortment of PITWORK of all sizes; STRAPPING PLATES, rolled and fagotted, all of which are secondhand, in good condition, and will be sold on very reasonable terms.
For particulars, apply to—
LANYON AND SON, MERCHANTS, REDRUTH.
Dated Redruth, Nov. 24, 1869.

HAYLE, CORNWALL.

ENGINES AND MACHINERY FOR SALE, AND READY FOR DELIVERY:—
ONE 70 in. ONE 68 in. ONE 60 in. ONE 50 in. TWO 45 in. THREE 40 in. and TWO 30 in. cylinder single-acting PUMPING ENGINES. Also,
TWO 24 in. ONE 22 in. and ONE 16 in. cylinder ROTARY ENGINES. Also
ONE 32 in. ONE 30 in. and ONE 24 in. cylinder STAMPING ENGINES.
Several BOILERS, with outfit complete; PUMP, and various kinds of PITWORK, and other MINING MACHINERY. These are all secondhand, in good condition, and are FOR SALE at moderate prices.
For further particulars, apply to—
HARVEY AND CO.
Dated Hayle, Cornwall, Nov. 17, 1869.

PERRAN FOUNDRY, CORNWALL.

ENGINES AND MINING MACHINERY FOR SALE:—
ONE 36 in. PUMPING ENGINE, secondhand.
ONE 30 in. PUMPING ENGINE, secondhand.
ONE 11 in. HORIZONTAL HIGH-PRESSURE ENGINE, new.
ONE 8 in. HORIZONTAL HIGH-PRESSURE ENGINE, new.
BOILERS for the above.
A large assortment of new and secondhand PITWORK in stock, of all sizes, at moderate prices.
WILLIAMS' PERRAN FOUNDRY COMPANY.
Dated 14th December, 1869.

SOUTH EXMOUTH MINE, HENNOCK, DEVON.

FOR SALE, BY PRIVATE CONTRACT, the following, viz.:—
40 in. cylinder PUMPING ENGINE.
25 in. cylinder WHIM ENGINE, with CRUSHER attached.
60 fms. 11 and 12 in. PUMPS in shaft.
30 fms. 11 and 12 in. PUMPS at surface.
Timber, and various useful mining materials.
Apply to Capt. JOHN CORNISH, Frank Mills Mine, Christow; or to Mr. J. O. HARRIS, Public Accountant, 2, Gandy-street, Exeter.

SOUTH WALES SMOKELESS STEAM COAL COLLIERY.

TO BE SOLD, OR LET BY TENDER, the BODRINGALT COLLIERIES, situate in the RHONDDA VALLEY, on the line of the Taff Vale Railway, 20 miles from Cardiff, comprising an area of 600 acres, contiguous to the Ferndale and Ocean Collieries. For the remainder of unexpired terms of upwards of 45 years at low rents and royalties.
For terms and particulars, and liberty to view, apply to Mr. DAVID LLEWELLYN, Glanwern Offices, Pontypool, Monmouthshire.

NUNEATON NEW COLLIERY, WARWICKSHIRE.

TO BE LET, ON LEASE, the NUNEATON NEW COLLIERY, WARWICKSHIRE. The colliery is at work, and well fitted up with WINDING ENGINE and MACHINERY. Two 8 feet shafts are sunk below the Seven Feet Coal, 200 yards deep, one of which has recently been well fitted up with conductors, cages, &c., for winding, and two seams—viz., Slate Coal and Seven Feet Coal—are partially opened. The plant to be taken to at a valuation. The colliery is situated within easy distance of railway and canal communication, and has also considerable land sale.
The above is an opportunity seldom offered of an extensive colliery, capable of producing a large yield, by a comparatively small investment.
For further particulars, apply to Messrs. RAWLINS and ROWLEY, Solicitors, Birmingham; or to Mr. SAMUEL BAILEY, The Plick, Walsall.

TO BE LET, ON LEASE, for a term of years, SEVERAL ACRES of LAND, suitable for MANUFACTURING PURPOSES, advantageously situated on the south bank of the River Tyne, about two miles below Newcastle-on-Tyne, and within a quarter of a mile from the North-Eastern Railway. There is a good quay frontage, with deep water.
Apply to Mr. T. S. BRAMWELL, King-street, Quay side, Newcastle-on-Tyne.

FOR SALE, BY PRIVATE CONTRACT, OLD-ESTABLISHED IRON WORKS, consisting of TWO BLAST FURNACES, with calcining kilns, coke ovens, and fire-brick sheds; also ROLLING MILLS, FORGES, FOUNDRY, &c.
These valuable works will be sold at a low valuation, and the payments can be extended over a lengthened period.
For further particulars, apply to Mr. THOMAS PRINGLE, Licensed Professional Valuer of Engineering Plant, &c., 7, Collingwood-street, Newcastle-on-Tyne.

TO BE SOLD, A DIRECT-ACTING HIGH-PRESSURE PUMPING ENGINE, with cylinder, 70 in. diameter, and 9 ft. stroke, standing over the shaft, fitted with metallic piston, hammered iron piston rod, crosshead and coupling plates to main pump rod, cast iron slide bars and slide blocks, foundation beams, and holding down bolts. The valve box is fitted with two brass equilibrium valves and seatings, and two regulating valves. The valve gear is worked by tappets and two catenar pumps, the steam pipes up and including a steam stop valve, and the exhaust pipes up to and including a cast iron elster for heating the feed water.
The main pumps consist of a 21 in. ram pump, about 125 yards in length, with brass clucks and leather lids; also a 17 in. ram pump, about 60 yards in length; and a bucket pump, 18 in. diameter, about 40 yards in length.
The main pump rod is in good pitch pine timber, about 14 in. square, jointed together with hammered iron plates and bolts.
The whole of the work was made by Mr. Robert Daglish, of St. Helena Foundry, and is in good working order, having only just stopped work from the water having been drawn off to another level, and may be seen any time on application at the Peasey Cross Colliery Office, St. Helens.

FOR SALE, THE UNDERMENTIONED ENGINES:—
ONE 50 in. cylinder PUMPING ENGINE, with ONE BOILER.
ONE 36 in. cylinder ROTARY STEAM ENGINE, 9 ft. stroke, with 10 ton BOILER, wrought-iron fly-wheel shaft, and 12 ton fly wheel, nearly new from the works.
ONE 12 in. cylinder rotary STEAM ENGINE, with ONE 6 ton BOILER.
THREE CORNISH BOILERS, from 10 to 12 tons each, in excellent condition.
Also, several CORNISH CRUSHERS, of various sizes.
For further information, apply to W. MATHEWS, Engineer, Tavistock.
Tavistock, Aug. 17, 1869.

FOR SALE, cheap, a 25-horse power PORTABLE STEAM ENGINE, new, and with all recent improvements, guaranteed.
FIRST-CLASS PORTABLES, horse power, 12-horse power, and 14-horse power, which only consume 5 lbs. of coal per horse power per hour, on advantageous terms.
FOR SALE, SEVERAL SECONDHAND PORTABLE STEAM ENGINES, by eminent makers, in excellent condition. Also a MORTAR MILL.
BARROWS AND STEWART, ENGINEERS, BANBURY.

RAILWAY CARRIAGE COMPANY (LIMITED).
ESTABLISHED 1847.
OLDBURY WORKS, NEAR BIRMINGHAM.
MANUFACTURERS OF RAILWAY CARRIAGES AND WAGONS, and EVERY DESCRIPTION OF IRONWORK.
Passenger carriages and wagons built, either for cash or for payment, over a period of years.
RAILWAY WAGONS FOR HIRE.
CHIEF OFFICES, OLDBURY WORKS, NEAR BIRMINGHAM.
LONDON OFFICES, 7, GREAT WINCHESTER STREET BUILDINGS.

STAFFORDSHIRE WHEEL AND AXLE COMPANY (LIMITED).
MANUFACTURERS OF RAILWAY CARRIAGE, WAGON, and CONTRACTORS' WHEELS and AXLES, and other IRONWORK used in the CONSTRUCTION OF RAILWAY ROLLING STOCK.
OFFICES AND WORKS, HEATH STREET SOUTH, SPRING HILL, BIRMINGHAM.
LONDON OFFICE, 118, CANNON STREET, E.C.

THE BIRMINGHAM WAGON COMPANY (LIMITED).
MANUFACTURE RAILWAY WAGONS OF EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract.
EDMUND FOWLER, Sec.
WAGON WORKS, SMETHWICK, BIRMINGHAM.
Loans received on Debenture; particulars on application.

WILLIAMS' PERRAN FOUNDRY COMPANY, PERRANARWORTH, CORNWALL.
MANUFACTURERS OF STEAM PUMPING, AND EVERY OTHER KIND OF ENGINES, together with BOILERS, PUMP CASTINGS, and MINING TOOLS of every description, of the very best quality. Estimates given for the supply of any amount of machinery.
London Agent.—Mr. EDWARD COOKE, 76, Old Broad-street, London, E.C.

THE CHIVERTON AND PERRANZABULOE MINING DISTRICT.
JUST PUBLISHED, a neatly LITHOGRAPHED MAP of the above district, showing the relative position of mines, all known lodes cross courses, &c.
Size of map, 3 feet 6 inches by 2 feet 6 inches. Price, coloured, mounted, and varnished, £1 1s.
Applications for copies to be addressed to Mr. E. H. BRENTON, Truro, or to WILLIAM BRENTON, Plain-an-Gwarry, Redruth, Mine and Land Surveyors, Dranghtsmen, Lithographers, &c.—Dated Nov. 10, 1869.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Devon.

PURSUANT to an Order or Decree made in the Cause of Pearce and Another v. Veale, the CREDITORS in respect of GOBBETT MINE, in the parish of Lydford, within the said Stannaries, are, on Friday, the 7th day of January next, at the hour of Eleven o'clock in the forenoon, TO COME IN and PROVE THEIR DEBTS before the Registrar of the said Court, at his office, in Truro, or in default thereof they will be EXCLUDED the BENEFIT of the said Decree.
(Agent for E. Chilcott, Plaintiffs' Solicitor, Tavistock).
Dated Registrar's Office, Truro, Dec. 16, 1869.

SHILBOTTLE COLLIERY.

MR. CHARLES BROUGH WILL SELL, BY AUCTION, at the Queen's Head Hotel, Pilgrim-street, Newcastle-upon-Tyne, on Tuesday, the 21st of December, at Two o'clock precisely, all that valuable and current-going COLLIERY, called SHILBOTTLE COLLIERY, in the county of NORTHUMBERLAND, about three miles from ALNWICK, comprising a considerable area of the celebrated SHILBOTTLE SEAM OF COAL, together with the COLLIERY PLANT, agents' and workmen's houses, and all other erections and buildings belonging thereto.
The colliery is within three miles of the North-Eastern Railway.
Further particulars may be obtained at the offices of the Auctioneer, Blackett-street; of Messrs. T. E. FORSTER and Co., Mining Engineers; and of Messrs. LAWS, GLYNN, and TASON, Solicitors, Newcastle-upon-Tyne.
Blackett-street, Dec. 7, 1869.

IN THE MATTER OF THE COMPANIES ACT, 1862, AND OF THE CAPE CORNWALL ST. JUST CONSOLIDATED TIN AND COPPER MINING COMPANY (LIMITED).

TO BE SOLD, BY PUBLIC TENDER, at the office of the Liquidator, No. 25, Bucklersbury, in the City of London, on Tuesday, the 28th day of December, at Twelve o'clock at noon, the WHOLE of the MACHINERY, PITWORK, and MATERIALS now upon the CAPE CORNWALL MINE.

Near PENZANCE, consisting of a 30 in. steam PUMPING ENGINE, and BOILER; a 26 in. steam STAMPING ENGINE, and TWO BOILERS and STAMPS; about 100 fms. of pumps; pitwork, ladders, skip road, sundry stores, materials, counting house furniture and effects, being the usual requisites of a mine; together with the company's interest in the grants, by virtue of which the mining operations of the said company have been carried on.

The mine is in full working order.
The whole to be disposed of in One Lot as a going concern.
Tenders will be received and opened, and the purchaser declared, at the place and hour above stated, but the liquidator does not bind himself to accept the highest tender.
The grants can be seen, and orders to view the property; and full particulars, with conditions of sale, be obtained of the Liquidator, CHARLES WARWICK, Esq., Public Accountant, 25, Bucklersbury; or of ALEXANDER KERLY, Esq., Solicitor, 98, London Wall, London, E.C.

IN COURSE OF LIQUIDATION.

THE WYTHBURN LEAD MINING COMPANY (LIMITED).
THE MINES IN HELVELLYN MOUNTAIN, CUMBERLAND.

ON SALE, and shortly WILL BE OFFERED BY TENDER, if not previously disposed of by private treaty, of which due notice will be given, the LEASE OF THE MINES.

Held from Sir Henry Ralph Vane, Bart., at 1-16th royalty; the minerals in store; workmen's tools; iron rails laid in the levels; self-acting incline railway, 600 yards long, well laid on wooden sleepers; large drum wheel, and best steel wire rope; iron wagon, &c.; extensive dressing floors; crushing mill, with 30 horse power turbine water wheel; jiggers, buddles, sheds, shops, counting house, ore house, and powder house at a distance, well secured; a large, well secured reservoir or dam to supply the turbine and dressing floors, &c., &c.
Lithographic plans and sections, and some mineral specimens, may be seen at the offices of JOHN DARLINGTON, Esq., Moorgate-street-chambers, Moorgate-street, London, E.C.

Further particulars may be had of the Liquidator—
WM. WHEELHOUSE, Boston Spa.

BY PRIVATE CONTRACT.

IRON ORE, COAL, FIRE AND TERRA COTTA CLAYS, &c.
IN THE MATTER OF THE COMPANIES ACT, 1862, AND IN THE MATTER OF THE RHOS HALL IRON COMPANY (LIMITED).

NORTH WALES.

VALUABLE MINERAL ESTATE, TO BE SOLD, BY PRIVATE CONTRACT, pursuant to the Order of the High Court of Chancery, with the approbation of the Master of the Rolls. The property consists of the LEASEHOLD IRON and BRICKMAKING WORKS, farm-house buildings, and about 35 acres of arable and pasture land, and mineral grant over the well-known extensive property, called the

RHOS HALL AND LLYWENINION ESTATES, Situate in the parishes of WREXHAM and RUABON, in the county of Denbigh. The grant comprises about 260 acres, held for a term of which 85 years are unexpired, and the nominal rent of £75 per annum, with the privilege of using the surface land adjoining that comprised in the grant upon payment of a rental of £2 per acre. The farm-buildings, and 35 acres of land, are let at a rent of £30 per annum. There are six pits on the estate, two blast-furnaces in course of erection, two brick kilns, drying sheds, &c.

The estate abounds in valuable coal measures, various ironstone beds, also a large extent of fire-clay, suitable for the manufacture of white bricks, sanitary pipes, and works of art in terra cotta.

A branch of the Shropshire and Union Railway passes through the estate, affording direct communication to all the best markets in the country.
The fixed PLANT and MACHINERY will be included in the purchase; but the vendors reserve to themselves the right of selling subsequently the movable effects by auction on the estate.

Application to be made to Mr. GEORGE SCOTT, the Official Liquidator, No. 2, Bond-court, Walbrook; or to the solicitors, Messrs. RUTTER, NEVE, and RUTTER, Wolverhampton; and Messrs. SHARP and ULLITHORPE, Gray's Inn, London.

SHARP and ULLITHORPE, ROBERT MARSHALL, Chief Clerk.
(Agents for Rutter, Neve, and Rutter, Wolverhampton, Solicitors for the Official Liquidator).
Dated this 8th day of December, 1869.

IMPORTANT AND EXTENSIVE IRONWORKS, AT LAWTON, NEAR SHIFFNAL, SHROPSHIRE.
Adjoining the Great Western Railway.

TO BE SOLD, BY PRIVATE CONTRACT, subject to conditions as to title, of these recently and substantially-erected WORKS, situated near to SHIFFNAL, and known as

THE LAWTON IRON AND STEEL WORKS, Lately in the occupation of THE LAWTON IRON AND STEEL COMPANY (LIMITED).

The premises have been built regardless of cost on the most improved and economic principles, and judiciously arranged throughout with every convenience for carrying on an extensive and profitable trade.

The erections comprise lofty sheet mill, with iron-plate floor, containing one 4 ft. by 20 in. and one 3 ft. by 18 in. train of rolls, both trains worked by a 50-horse high-pressure horizontal steam-engine, four heating and annealing furnaces, three pair cropping and shearing shears, wood engine-house, and 6-horse pumping engine, two wells, elsters, &c., with lofty stack; a conveniently placed set of offices, commodious warehouse, iron-plate floor, with store room and stockholder's office attached, fitted with Kitchen's patent weighing machine, to weigh 30 cwt., cutting shears, &c., opening on to the railway siding by folding doors, with shed roof over.

Excellent wire mill, iron-plate floor, two trains of rolls complete, with supplementary speed to finishing rolls; also a train of rolls, the whole worked by a 30-horse high-pressure horizontal steam-engine, and two heating furnaces adjoining, covered with shed roof; two capital firing boilers, one 30 feet by 6 feet, one 24 feet by 6 feet.

Grass store and vault under superior eight-hole casting shop, capacious water cistern and supports, with vertical pumping engine, well reservoir, &c.

Lathe shop, with powerful lathe, 24 feet bed, capable of turning steel, forge, and wire rolls; massive crane, and 6-horse high-pressure engine and boiler, slack hole, and stack; millwrights' shop, blacksmiths' shop, with double hearth, &c.

The Old Forge, iron-plate floor, 75 feet by 48 feet, with 16 in. forge train, by Perry and Son, for hills; set of rolls for bars, worked by 40-horse horizontal high-pressure steam-engine, two force pumps, two pair shears, &c.; 6-ton helve, or tilting hammer, with machinery all complete, worked by a 25-horse high-pressure steam-engine, two puddling furnaces, and shed roofs attached; six powerful boilers, and two lofty stacks.

Clay house and mine house, two-stalled stable, and gig-house.

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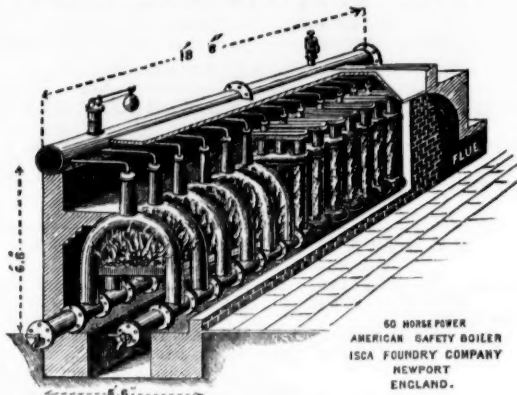
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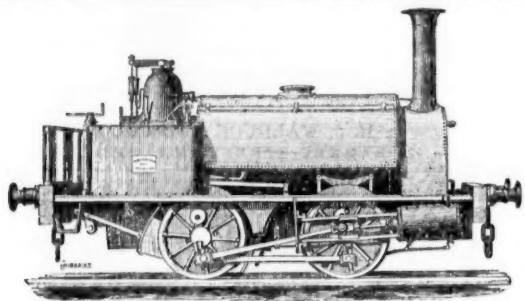
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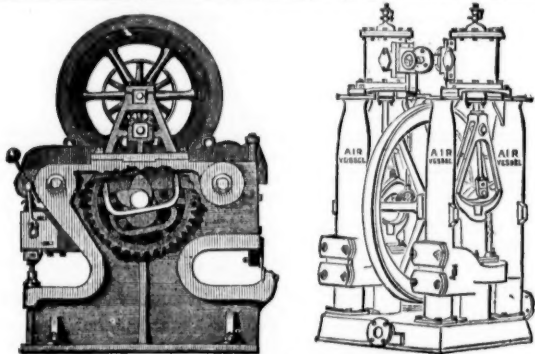
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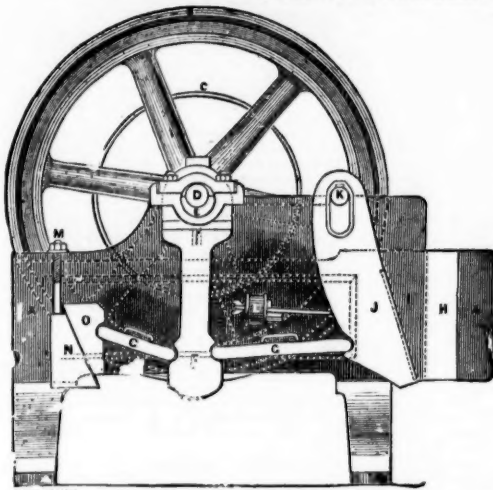
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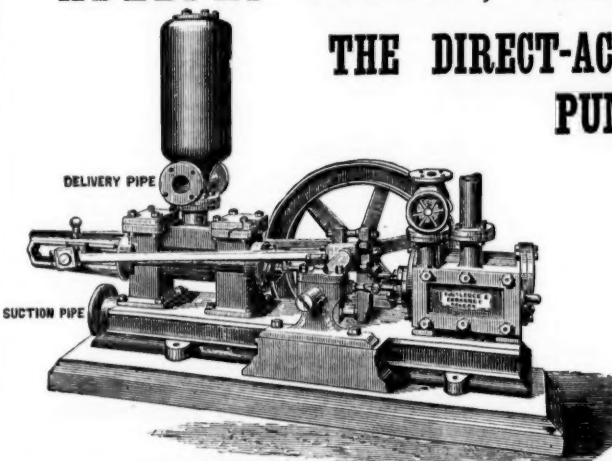
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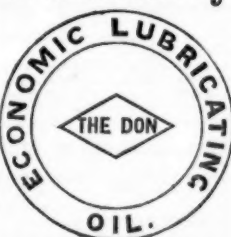
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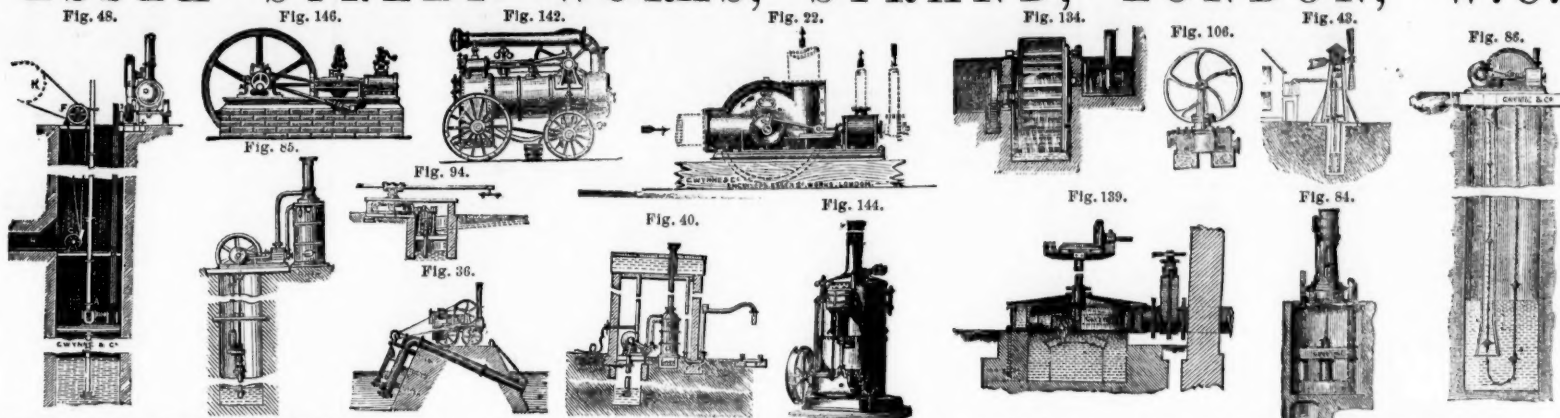


Fig. 144.—Vertical Engine, all sizes, from 2 to 20-horse power.
Fig. 146.—Horizontal Engine, from 4 to 100-horse power.
Fig. 142.—Portable Engine, from 2½ to 30-horse power.
Fig. 40.—Gwynne and Co.'s Combined Stationary Pumping Engine.
Fig. 139.—Turbine Water-wheel, from 1 to 300-horse power.

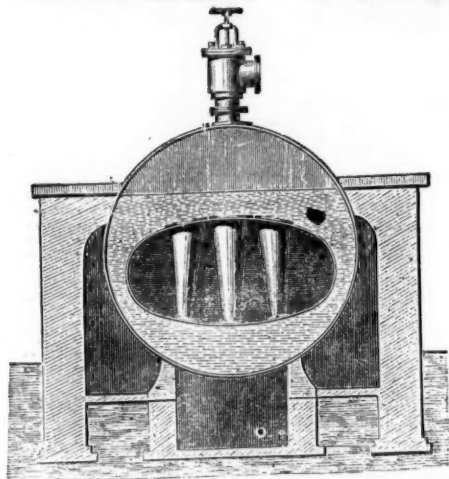
Fig. 22.—Combined Pumping Engine, all sizes, obtained Prize Medal, Paris Exhibition.
Fig. 85.—Deep Well Pumping Engine, all sizes.
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Fig. 36.—Gwynne and Co.'s Patent Syphon Drainage Machinery.
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Fig. 86.—Chain Pump Pumping Engine.
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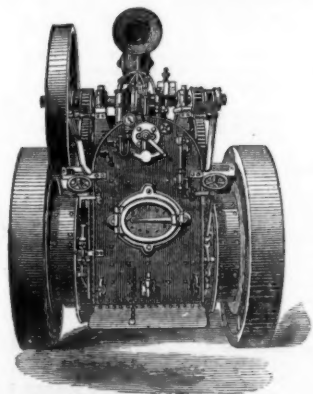
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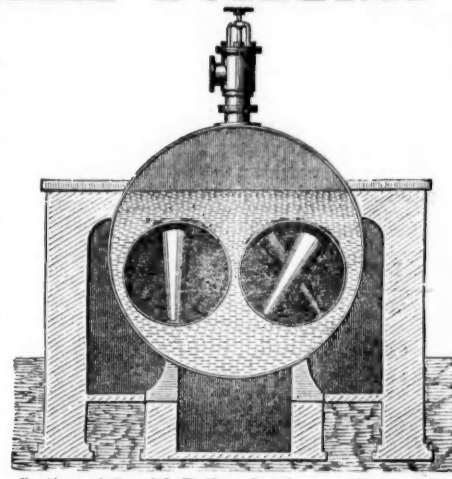
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15 Chiverton, £2 1/2	70 No. Treskerby, 14s 9d	7 Great Vor, £14 17s 6d
20 Trelawny, £2 1/2	8 Mary Ann, £13.	10 Hammett, £19 1/2
60 New Lovell, £1 1/2	65 Taquair, 2s 6d. pm.	35 Aberdunant, £10 1/2
21 Brynpostig, 22s. 6d.	58 Don Pedro, £3 1/2 pm.	105 Virtuous Lady, £9 1/2
50 Welsh Con., £12 1/2	120 Fronton, 30s. 6d.	99 Excelsior, £10 1/2
20 Budick, £12 1/2	85 So. Condarrow, 36s 9d.	25 Princess of Wales, £10 1/2
2 East Basset, £2 1/2	20 Chiv. Moor, £2 18s 3d	30 Frank Mills, £3 8s. 9d
2 Trumpet Con., £2 1/2	95 East Rosewarne, 36s 6d	25 Albion Palace, £10 1/2
50 Pacific, 15s. prem.	3 Ding Dong, £2 1/2	4 Providence, £3 1/2
50 So. Great Work, 6s 6d	12 East Lovell, £24 1/2	5 Wt. Chiverton, £24 1/2
2 West Frances, £3 1/2	20 East Caradon, £6.	50 Brynpostig, £3 7s. 6d.

We specially call the attention of our clients to the EXCELSIOR TIN MINE. Being in a position to recommend these shares for a speedy rise, the risk is nothing, with every prospect of an early return for outlay.

CAPITALISTS SEEKING SAFE AND PROFITABLE INVESTMENTS. Free from risk, should act only upon the soundest advice. The undersigned having had upwards of 20 years experience in the different share markets offers his services. Mines judiciously selected afford a wider range for profit than any other class of securities. Instances frequently occur of 1000 per cent. and upwards being returned on the original outlay. Read "Britain's Metal Mines" a complete guide, price 1s., free per post 1s. 3d.

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THE MESSRS. VERCOE, PRACTICAL MINING ENGINEERS AND SURVEYORS, are always in a position to GIVE SOUND ADVICE on all the MINES in this DISTRICT, having lived in the locality for nearly five years, and being daily engaged in Mining Pursuits.

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The following works by Mr. BOURNE may also be had at 66, Mark-lane; or of Messrs. LONGMANS, Paternoster-row:—

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No. 24, MARKET PLACE, MANCHESTER.

THE GLEW CONSOLIDATED MINES,

IN THE PARISHES OF TOWEDNACK AND UNY LELANT, CORNWALL.

To be conducted on the COST-BOOK SYSTEM.

Capital £12,000, in 48 shares of £250 per share; whole shares (48), £250 each; half shares (96), £125 each; quarter shares (192), £62 10s. each.

The undersigned gentlemen have taken large interests in the enterprise, and it is from amongst them, or others equally eligible, the committee of management will be selected.

Major RICKFORD, Tuckingmill, Cornwall.

WILLIAM HARVEY, Esq. (Harvey and Co.), Hayle.

CHARLES MAGNIAC, Esq., M.P., Lombard-street, London.

T. S. BOLITHO, Esq., Tringwalton, Penzance.

ALFRED LANTON, Esq., Redruth, Cornwall.

JAMES B. COULSON, Esq., Penzance, Cornwall.

ABRIDGED PROSPECTUS.

It was originally intended to constitute the company in 48 shares; but several parties anxious to have an interest, feeling whole shares to be heavy, it was determined to issue half shares and quarter shares.

The property is surrounded by the richest tin mines in the county, such as St. Ives Consols, which has returned £11,531 profit upon an outlay of £4000; the Wheal Reeth, which gave the late James Halse, Esq., M.P. for St. Ives, £27,000 profit upon an outlay of £3000; Wheal Margaret, which has paid £67,368 in dividends upon an expenditure of £8848; Wheal Mary, which has divided £42,000 in profit upon an outlay of £5000. The lodes in the Glew Consolidated Mines are the same as those of Wheal Reeth and the Providence Mines, which last mine is now the best paying one in the district. The amount already paid to the shareholders has been £102,900, and upon an outlay of £11,569, the present dividends being £1 10s. per share per quarter, or after the rate of £6720 per annum.

The Glew Consolidated Mines are considered by all competent authorities, who have inspected them, to be the richest tin ground not in course of working in this district, and quite to be desired that all mining capitalists should become acquainted with their merits.

It is considered that 25 tons of tin per month can be easily obtained as soon as the mines are worked. This quantity at the current price of the day, by the adoption of the improved principles of winding, stamping, and dressing, will easily allow a profit of £7000 per year, and that a gradual increase as the mines are developed in the newly-acquired ground will be the result.

For a detailed account of the valuable character of this property, see reports of recent dates. It might be added that nearly half a mile of virgin ground on the terrain of the lodes adjoining Wheal Reeth has lately been obtained, through great difficulty and the exercise of great influence.

Application for shares to be made to—

Mr. THOMAS TREWEKE, Uny Lelant, Hayle, Cornwall.

N.B.—The Share List will be closed either in the first or second week in January, 1870.

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.		Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
1500	Alderley Edge, c. Cheshire	10 0 0	..	10 0 0	..	10 0 0	..	10 0 0	..
200	Bottallack, t. c. St. Just	91 5 0	..	210	..	235 240	..	560 5 0	0 0 0, Jan. 1869
12000	Brynpostig, t. Cardigan	1 0 0	..	3 1/2	..	3 3/4	..	1 7 1/2	0 0 0, 16 Oct. 1869
5094	Bwch Consols, s. t. Cardigan	4 0 0	..	3 1/2	..	3 3/4	..	0 5 0	0 0 0, 5 June 1868
6400	Cashwell, t. Cumberland	2 10 0	..	..	..	..	..	0 6 0	0 0 0, 3 June 1869
518	Cargill, s. t. Newlyn	15 5 7	..	..	..	..	..	16 15 0	0 0 0, 10 Aug. 1869
2450	Chanticleer, t. Flint	0 7 8	..	..	..	..	..	0 1 0	0 0 0, 6 Nov. 1868
1283	Cook's Kitchen, c. Illogan	19 14 9	..	13 1/2	..	13 1/2	..	2 19 6	0 7 6, Oct. 1869
509	Croaghwaun and Penkelt	..	..	..	..	..	..	2 5 0	1 5 0, Oct. 1869
867	Cwm Erfin, t. Cardiganshire	7 10 0	..	..	..	..	..	31 3 0	0 10 0, Oct. 1869
128	Cwmystwith, t. Cardiganshire	60 0 0	..	..	..	..	..	387 10 0	0 0 0, July 1869
2024	Derwent Mines, s. t. Durham	300 0 0	..	..	..	..	..	177 0 0	0 2 10 0, July 1868
1800	Devon Gl. Consols, c. Tavistock	1 0 0	..	130	..	125 135	..	1187 0 0	5 0 0, Sept. 1869
656	Ding Dong, t. Guilford	49 14 6	..	25	..	22 23	..	6 0 0	1 0 0, Dec. 1869
1432	Dolcoath, c. t. Camborne	32 4 6	..	130	..	122 1/2 127 1/2	..	233 2 6	3 0 0, Dec. 1869
6144	Drake Wallis, t. Calstock	2 10 0	..	1	..	3 1/2	..	1 1 0	0 0 0, 1 Oct. 1869
300	East Caradon, c. St. Cleer	2 14 6	..	1	..	6 1/2	..	14 11 0	0 2 0, July 1869
300	East Darron, t. Cardiganshire	39 0 0	..	..	..	..	..	17 10 0	0 0 0, 3 Sept. 1869
6400	East Pool, t. c. Pool, Illogan	0 9 9	..	7 1/2	..	7 1/2	..	9 12 0	0 3 0, Nov. 1869
1908	East Welsh Lovell, t. Wendron	3 9 0	..	24 1/2	..	24 1/2	..	6 16 0	0 2 0, Oct. 1869
2800	Foxdale, t. Isle of Man	25 0 0	..	..	..	..	..	74 5 0	0 15 0, Oct. 1869
5000	Frank Mills, t. Christow	3 18 6	..	3 1/2	..	3 3/4	..	4 1 6	0 4 0, Nov. 1869
3950	Gawton, c. Tavistock	3 10 6	..	..	..	..	..	0 3 0	0 0 0, Jan. 1868
15000	Great Laxey, t. Isle of Man	4 0 0	..	20	..	19 19 1/2	..	11 13 0	0 8 0, Dec. 1869
3000	Great Northern Manganese	5 0 0	..	..	..	..	..	5 p.c.	.., Sept. 1869
1000	Great Wheal Vor, t. c. Helston	40 0 0	..	15	..	15 15 1/2	..	15 1 0	0 0 0, Feb. 1869
1024	Herodfoot, t. near Liskeard	3 10 0	..	44	..	42 44	..	51 0 0	1 10 0, Oct. 1869
12000	Holmbush and Kelly Bray, c. t.	1 0 0	..	3 1/2	..	3 1/2	..	0 3 0	0 1 0, Nov. 1869
165	Levant, c. t. St. Just	10 8 1	..	..	..	..	..	1101 0 0	0 2 0, Aug. 1869
400	Lisbriary, t. Cardiganshire	18 15 0	..	..	..	..	..	525 0 0	3 0 0, July 1869
3000	Maes-y-Safn, t. Flint	20 0 0	..	..	..	..	..	4 0 0	0 5 0, Oct. 1868
9000	Marke Valley, c. Caradon	4 10 6	..	7 1/2	..	6 3/4	..	5 13 0	0 4 0, Oct. 1869
3000	Minera Boundary, t. Wrexham	1 0 0	..	..	..	..	..	0 13 0	0 3 0, Mar. 1866
3000	Minera Mining Co. t. Wrexham	25 0 0	..	..	..	..	..	263 3 3	4 0 0, Nov. 1869
20000	Mynydd Iron Ore	7 0 0	..	11 1/2	..	11 1/2	..	0 11 6	0 3 0, Feb. 1869
40000	Myndy Iron Ore	2 0 0	..	1 1/2	..	1 1/2	..	0 15 0	0 10 0, Aug. 1869
200	Parys Mines, c. Anglesey	60 0 0	..	..	..	..	..	162 10 0	0 2 10 0, Aug. 1868
5000	Pennell, t. St. Agnes	3 0 0	..	5 1/2	..	6 1/4	..	0 15 6	0 5 0, Oct. 1869
12800	Prince of Wales, c. Calstock	0 12 6	..	1 1/2	..	1 1/2	..	0 10 6	0 1 0, Nov. 1869
1120	Providence, t. Uny Lelant	10 6 7	..	36	..	35 36	..	9 2 6	1 10 0, Sept. 1869
512	South Caradon, c. St. Cleer	1 5 0	..	330	..	..	..	632 10 0	5 0 0, Nov. 1869
937	South Darron, t. Cardigan	3 6 6	..	2	..	1 1/2	..	1 0 0	0 2 6, Nov. 1869
287	South Darron, t. Cardigan	24 10 0	..	..	..	..	..	2 12 0	0 10 0, Sept. 1869
496	St. Wh. Frances, t. Illogan	18 19 6	..	6	..	8 10	..	874 13 6	0 0 0, Mar. 1868
242	Spearhead, t. St. Just	36 17 9	..	19	..	18 1/2 19 1/2	..	11 15 0	1 0 0, Oct. 1869
940	St. Ives Consols, t. St. Ives	10 15 0	..	12	..	11 1/2	..	0 10 0	0 10 0, May 1869
8771	St. Just Amalgamated, t.	3 10 0	..	..	..	..	..	0 2 6	0 2 6, Nov. 1869
508	Summer Hill, t. Mold	3 18 6	..	..	..	..	..	2 5 6	0 5 0, Feb. 1868
6000	Tincroft, c. t. Pool, Illogan	9 0 0	..	19 1/2	..	19 1/2	..	22 1 0	0 10 0, Nov. 1869
2000	Trumpet Cons., t. Helston	11 10 0	..	22	..	21 22	..	10 2 0	0 14 0, Nov. 1869
12000	Van, t. Llandidloes	4 5 0	..	41	..	41 43	..	0 10 0	0 5 0, Sept. 1869
3000	W. Chiverton, t. Penryn	4 10 0	..	56	..	54 55	..	38 7 6	2 0 0, Nov. 1869
2000	West Godolphin, t. c. Breage	0 10 0	..	..	..	..	..	0 3 0	0 1 0, July 1869
2582	West Great Work, t. Breage	5 11 0	..	..	..	..	..	0 2 0	0 2 0, June 1869
512	West Welsh Frances, t. Illogan	106 15 0	..	39	..	35 37	..	4 10 0	1 10 0, Oct. 1869
400	W. Wheal Seta, c. Camborne	47 0 0	..	180	..	170 180	..	648 0 0	5 0 0, Dec. 1869
512	Wheal Basset, c. Illogan	5 2 6	..	35	..	25 30	..	632 10 0	1 0 0, June 1868
1024	Wheal Friendship, c. Tavistock	20 0 0	..	..	..	..	..	300 10 0	0 10 0, Nov. 1866
512	Wheal Jane, s. t. Kea	10 15 0	..	45	..	44 46	..	37 10 0	1 10 0, Nov. 1869
4285	Wheal Kitty, t. St. Agnes	5 4 6	..	6 1/2	..	5 1/2	..	8 9 0	0 5 0, Nov. 1869
1000	Wheal Lick, t. c. Uny Lelant	2 10 0	..	12	..	12 13	..	7 1 6	0 15 0, Oct. 1869
896	Wheal Margaret, t. Uny Lelant	13 17 6	..	11	..	9 10	..	76 15 0	0 10 0, Aug. 1869
1024	Wheal Mary Ann, t. Menheniot	8 0 0	..	15	..	12 1/2 13 1/2	..	69 17 6	0 12 6, Dec. 1869
1000	Wheal Mary Hutchins, Plym., t.	2 12 6	..	..	..	..	..	0 10 0	0 5 0, Aug. 1869
80	Wheal Owles, t. St. Just	70 0 0	..	..	..	..	..	424 13 0	5 0 0, Nov. 1869
396	Wheal Seta, c. Camborne	58 10 0	..	32 1/2	..	30 32 1/2	..	259 15 0	2 0 0, Feb. 1868
3000	Whitehead Lead, Clitheroe	0 5 0	..	..	..	..	..	1 0 0	0 10 0, Dec. 1867
7000	Wicklow, c. t. Wicklow	2 10 0	..	..	..	8 1/2	..	60 8 0	0 5 0, Sept. 1869

FOREIGN DIVIDEND MINES.									
35000	Alamillos, t, Spain*	2 0 0	..	1½	..	1½	..	0 8 6	0 2 0, Oct. 1869
20000	Australian, c. South Australia†	7 7 6	..	..	..	..	..	0 1 6	0 6 Aug. 1869
15000	Cape Copper Mining*	7 0 0	..	16	..	16½	..	4 12 6	0 15 0, Nov. 1869
30000	Central American Association*	0 10 0	..	..	..	..	..	0 6 0	0 1 0, July 1869
10000	Copiapo Mining Co., Chili†	16 10 0	..	3	..	3	..	0 4 0	0 4, April 1869
75000	Don Pedro North of the Bay*	0 14 0	..	4½	..	3½	4	1 6 9	0 3 Aug. 1869
70000	English and Australian, c.*	2 10 0	..	..	..	..	..	—	0 2, Feb. 1869
20000	Fortuna, t, Spain*	2 0 0	..	3	..	2½	3	1 17 10	0 30 Oct. 1869
50000	Gen Mining Assoc., Nova Scotia†	20 0 0	..	9	..	6 8	..	23 10 0	0 15 0, June 1869
18000	Gonnesa, t, Sardinia*	5 0 0	..	..	..	..	..	10 per cent.	Aug. 1869
30000	Kapunda Mining Co., Austrat	1 0 0	..	14	..	14 ¾	¾	0 1 10	0 6 Nov. 1869
40000	Laurel, c. Chile†	1 0 0	..	10	..	10	..	10 10 0	5 0, Aug. 1869
50000	Panuello, c, Chili†	4 0 0	..	13	..	14 1¾	¾	10 per cent.	Yearly.
10000	Pontabaud, s-t, France†	20 0 0	..	14	..	12½	13½	7 18	1 15 6, Nov. 1869
30000	Port Phillip, c, Clunes*	1 0 0	..	1	..	1 1½	..	1 3 6	0 1 6, Jan. 1869
10000	Scottish Australian Min. Co. f.	1 0 0	..	1	..	¾	¾	6 per cent.	Nov. 1869
10000	St. John del Rey, Brazil†	15 0 0	..	17½	..	18 20	..	81 10 0	4 5 0, Dec. 1869
40000	St. Lawrence, c. Chile†	2 0 0	..	17	..	17 ¾	¾	10 10 0	5 0, Nov. 1869
3500	Vancouver Coal Mining†	6 0 0	..	7½	..	7½	7¾	3 3 6	0 9 0, Nov. 1869
10000	Victoria (London) £25000 £1 pd.	25000	12s. 6d. pd.	..	..	..	..	0 9 7	0 7, July 1869
00000	West Canada Mining Co.	1 0 0	..	..	..	..	..	0 19 6	0 2 6, May 1869